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EDITORIAL.

Albany College of Pharmacy.

A NEW school of pharmacy is to be opened on the 3d of October at Albany, as a department of Union University. It will occupy the rooms of the Albany Medical College (another department of the University) and will have as its faculty, Jacob S. Mosher, M.D., Professor of Botany and Materia Medica; Willis G. Tucker, M.D, Professor of Chemistry, and Gustavus Michaelis, Professor of Pharmacy.

The school will be particularly fortunate in its location, both as regards educational advantages and field for work, and we wish its promotors much success in their undertaking. Dr. Tucker is the Secretary and may be addressed at No. 4, Lancaster street.

The New Jersey State Board of Health

WILL unite with the State Fair of New Jersey in the meeting to be held on the 19th to 24th of September inclusive, at Waverly, N. J., to make an exhibition of sanitary, household, and ornamental articles and appliances. This exhibition will be well worthy the attention of all pharmacists. An abbreviated summary of the leading articles can be obtained by addressing E. A. Osborn, C. E., Middletown, N. J., or E. Dunn, 104 Market street, Newark, N. J. Specimens, drawings, or models for competition for premiums or for exhibit are solicited; the foreign address of the secretary during July and August being E. M. Hunt, M.D., care Trübner & Co., 57 Ludgate Hill, London.

The following are the classes which will particularly interest our readers and advertisers:

CLASS 75.

	Prize.
Druggists' Samples, Disinfectants....	
Preserved Foods, Health and Condensed Foods, Invalid Preparations.....	
Refrigerators, Food Preservers.....	
Yeast Powders....	
For selection of each class.....	Silver Medal, Medal or Diploma.

CLASS 78.

Food Adulteration and Testing Apparatus....

Society Meetings.

THIS month is notable for the number of associations and conventions that are to be convened: the International Pharmaceutical Congress, at London; the American Pharmaceutical Association, in Kansas City, on the 23d; the initiatory proceedings for organizing a State association in Albama; and the meeting in Cincinnati, Ohio, of the American Association for the Advancement of Science. Coincident with the session of the congress of pharmacists is to be held an International Medical Congress, so that those who are able to be in London during the first week of this month may have their fill of papers, entertainments, excursions, exhibitions, etc.

The cutting of railroad rates has reached a point which will admit of a round-trip ticket being secured from New York to Kansas City for twenty-eight dollars. The circular of the local secretary, which will probably reach all members of the association, will give definite figures and information relating to railroad fares and hotel accommodations. A large attendance is probable.

Doctor X. is an eminent physician of Philadelphia; in manner he is brusque and overbearing. Among his office patients one morning was a gentleman who, after occupying exactly five minutes of the great man's time, took a ten-dollar note from his pocket and inquired the fee. "Fifty dollars," said the impatient medical man. The patient demurred a little, whereupon the physician rudely remarked, "Well, what do you expect to pay? Give me what you have," and, on receiving the ten-dollar bill, turned scornfully to his negro servant and, handing him the money, said, "That is for you, Jim," but lost his temper still more when his patient coolly said, "I did not know that you had a partner. Good morning, doctor."

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS

[ORIGINAL COMMUNICATION.]

PRACTICAL INSTRUCTION IN THE USE OF THE MITSCHERLICH POLARI-STROBOMETER.

BY EMIL ROSENBERG, M.D., OF NEW YORK.

(*Concluded*).

LIST OF ACTIVE SUBSTANCES.

THE specific rotatory power is a constant and can therefore serve as a characteristic of the active substance. The constant character is, however, modified by several conditions, apart from the direction of rotation (+ or −). They are: the light-ray to which the determination refers; the nature of the menstruum (water, alcohol, etc.); the concentration of the fluid; the temperature possessed by the fluid at the time of observation. We give below a partial list of active substances with their specific rotations (α), without regard to the modifying conditions alluded to. For a complete list the reader is referred to Prof. H. Landolt's work, "Das optische Drehungsvermögen organischer Substanzen," etc., pp. 11–14 and 204–237. ("The optical rotatory power of organic substances," etc.) Braunschweig, 1879.

Specific Rotation:

Cane sugar	+ 66.5°
Mycose	+ 192.5°
Melitose	+ 102°
Melezitose	+ 94.1°
Maltose	+ 159°
Milk sugar	+ 58.2°
Diabetic sugar	+ 56.4°
Dextroglucose	+ 53° (at 20° C.)
Lævoglucose (fruit sugar)	− 53° (at 90° C.); − 106° (at 14° C.)
Inverted sugar	− 26.65° (at 14° C.)
Inulin	− 34.7°
Gum arabic (aqueous solutions of various kinds)	+ 37.3°; + 46.1°; − 28.8°; − 29.2°; − 30°
Starch	+ 211°
Dextrin	+ 139° to 213°
Glycogen	+ 140° to 211°
Salicin	− 73.4°
Phloridzin	− 52°
Paralactic acid	+ 2.7°
Dextro-tartaric acid	+ 14.9° to 15.22°
Lævo-tartaric acid	− 8.43°
Oil of turpentine.	
American	+ 14.15°
French	− 29.3°
Dextro-camphor. (Laurel or common.)	+ 47.4°
Lævo-camphor	− 47.4°
Asparagin in acid sol.	+ 25.16° in alk. solution
Asparaginic acid in acid sol.	+ 35.09° in alk. solution:—
Coniine	+ 10.6° to 17.9°
Nicotine	− 161.55°
Quinine sulph. (in water)	− 164.85° to 175°
bisulph. (in water)	− 170.3°
muriat. (in water)	− 145°
Cinchonidine (in alcohol)	− 107.48°
Cinchonine (in alcohol)	+ 226°
sulph. (in water)	+ 204°
Chinidine (Conchinine) sulph. (in water)	+ 232°
Morphine sulph (in water)	− 100.47°
Codeine (in alcohol)	− 135.8°
Narcotine (in alcohol)	− 185°
Thebaine (in alcohol)	− 218.6°
Papaverine (in alcohol)	− 4°
Brucine (in alcohol)	− 85°
Santonine (in alcohol)	− 174° to 176.5°
Strychnine (in alcohol)	− 128°
Cholesterine (in ether)	− 31.12°
Glycocholic acid	+ 29°
Sodium glycocholate (in alcohol)	+ 25.7°
Sodium taurocholate (in alcohol)	+ 24.5°
Cholic acid (in alcohol)	+ 50.2°
Glutin	− 130°
Chondrine	− 213°
Serum albumen	
Neutral aq. sol.	− 56°
Aqueous solution satur. with NaCl	− 64°
with acet. acid	− 71°
with mur. acid (until precipitate re-dissolves.)	− 78.7°
Egg albumen	
Aqueous solution	− 35.5°
with mur. acid	− 37.7°
with strong alkali	− 4°
Caseine	
dissolved in sol. magn. sulph	− 80°
dil. mur. acid	− 87°
liq. sodæ caust	− 76°
Albuminates (albuminous substances treated by concentr. liq. potassæ caust.)	
from serum albumen	− 86°
" uncoagulated egg albumen	− 47°
" coagulated do	− 58.5°
" caseine	− 91°
Paralbumin, from ovarial cysts	− 61.5°
Syntonine, in very diluted muriat. acid	− 72°
Pepton (from fibrin)	− 40.4°

ADDITIONAL NOTE ON SOME POINTS OF SPECIAL INTEREST FOR THE PHYSICIAN.

The polarimetrical method is chiefly quantitative. While we are able to identify a substance presented to us in its natural and normal condition through its specific rotation, in the case of solutions we cannot identify the substance held in solution, but can only pronounce upon their containing a right-handed or a left-handed substance, or, perhaps, both at the same time. The same holds good in the case of the urine. We need not pay any attention here to the assertion repeatedly made within the last few years of the presence of right and left-handed substances in *normal* urine. For in all those observations the rotations are too small to seriously affect the correctness of our determinations. At the most, the presence of these substances would give rise merely to an insignificant source of error. The same holds good concerning the bile-acids (dextro-rotatory), on account of the minute quantity in which they occur in the urine.

Nevertheless, we would, occasionally, commit an error in considering any right-handed substance discovered in urine, as sugar, or any left-handed, as albumen. We must not forget that certain drugs eliminated through the urine are endowed with dextro or lævo rotatory power and thus may simulate diabetic sugar or albumen. Certain alkaloids, as morphine, etc., will not require to be considered in this connection, as they are only taken in minute doses, whilst very *large doses* of left-handed quinia preparations, or of the right-handed quinia surrogates might very easily deceive us. Eventually the quinia secreted in the urine would have either to be eliminated by precipitation (tannin), or it would be necessary to determine its rotation.

The polarimetrical determination ought always to be preceded by the chemical qualitative test. Each sample of urine under examination should be subjected to the ordinary chemical test for albumen and sugar. If a diabetic urine contain more than a trace of albumen, this latter must be eliminated by precipitation (heat and acid), before the sugar is polarized, since a part of the right-handed rotation appertaining to sugar is neutralized by the left-handed albumen.

If it is intended to polarize in such a urine both sugar and albumen, we should (supposing the sugar to exceed the albumen) first determine the right-handed rotation of a measured quantity of the urine, then eliminate the albumen, after that again determine the right-handed rotation of the filtrate, which will be greater than that obtained before. The difference would then be credited as left-handed rotation to the albumen. Before polarizing the filtrate, it ought to be diluted to the original volume.

The urine ought to be as fresh as possible and always filtered. Decolorization by lead solution is only occasionally necessary. For every 10 cc. urine the addition of 1 cc. lead solution is commonly sufficient. The mixture should be shaken well and filtered.

Albuminous urine, in which albumen is to be determined, cannot be decolorized, but may be clarified by adding either acetic acid (a drop) or solution of caustic soda.

In diabetic urine the reaction is indifferent, but this is not the case with albuminous urine. The specific rotation $-56°$ holds good only for the neutral solution of serum albumen, strongly acid or alkaline solutions of albumen have other much higher specific rotations. This behavior can be turned to good account. A measured quantity of albuminous urine is shaken with a measured quantity of solution of soda. After standing at rest for three hours, it is filtered, polarized and the dilution taken into account. We have then the advantage that, by reason of the higher specific rotation ($-86°$) smaller quantities of albumen may become determinable.

Regarding the specific rotation of *glucose*, we should add, that according to Hoppe-Seyler's latest determinations we have to adopt $(\alpha)_D = +56.4°$ for diabetic sugar.

For commercial glucose, the commonly accepted value $+53°$ is correct. In making test-solutions of glucose, the commercial substance is probably always employed. Hence it is important to note here a singular property of this substance, the so-called bi-rotation. A freshly prepared cold aqueous solution (100%) does not rotate $+53°$ (in the 100 mill. tube) but $+106°$. It decreases to the minimum $+53°$ after standing for twenty-four hours, after treatment with acids, or after boiling for a short time (two minutes). In experimental examinations it will be most convenient to employ the latter method (boiling).

The specific rotation of albumen in urine, *provided* the urine has not undergone chemical change, is: $-56°$. The presence of more than one kind of albumen in the urine makes the result of the determination somewhat uncertain. Altogether the determination of albumen is more difficult than that of sugar, and sometimes even impossible.

We have only to add that less than 0.2 sugar or albumen cannot, with exactitude, be *directly* determined by this method.

It is, furthermore, hardly necessary to mention that both sugar and albumen are determinable by the polarimeter not merely in urine, but in any transparent physiological or pathological transudation.

Among other polarimetrical determinations that of milk-sugar $[(\alpha) = +58.2°]$ in milk may here be mentioned.

40 cc. milk are well shaken with 20 cc. acetate of lead solution, heated to incipient ebullition over a small flame, and filtered. The clear, transparent filtrate, diluted to the original volume, is then ready for polarizing. The milk being here diluted to $\frac{3}{4}$, $\frac{1}{2}$ has to be added to the computed amount.

Regarding the value of the Mitscherlich apparatus, the attention of the reader is called to the comparative observations made by Prof. H. Landolt, with Mitscherlich's, Wild's, and Laurent's polaristrobometers, leading this author (l. c., page 118) to the following conclusions:

"From these observations it follows that the determinations obtained by these several apparatuses uniformly agree to tenths of a degree, differences appearing only in the second, sometimes even merely in the third decimal. It is, therefore, indifferent which of the three instruments be employed, the difference consisting mainly in the varying facility of observation."

Correction.—Our attention has been called to a misprint in the formula of pseudo-tropine, on page 183 of the June number, second column, line 5 from below, where it should be: $C_8H_{15}NO$.

Glucose and Grape-Sugar.

BY PROFESSOR HARVEY W. WILEY.

THE manufacture of syrup and sugar from corn-starch is an industry which, in this country, is scarcely a dozen years old, and yet it is one of no inconsiderable magnitude. On August 1st, 1880, ten glucose-factories were in operation in the United States, consuming daily about twenty thousand bushels of corn. These, with their several capacities, are as follows:

Firmenich's, Buffalo	4,000 bushels.
Buffalo, Buffalo	5,000 "
American, Buffalo	3,000 "
Higher, St. Louis	1,000 "
Peoria Refinery, Peoria	2,500 "
Peoria Grape-sugar, Peoria	850 "
Davenport, Davenport, Iowa	1,500 "
Freeport, Freeport, Illinois	1,500 "
Duryea, Brooklyn	1,500 "
Sagetown, Sagetown, Illinois	250 "

At that time, also, there were in process of construction nine factories, with a total capacity of twenty-two thousand bushels daily. At the same time additional machinery was in process of erection in the two Peoria factories, which increased their capacity two thousand and twenty-five hundred bushels, respectively.

The new factories were building in—

Detroit	capacity,	3,000 bushels.
Chicago*	"	10,000 "
Geneva, Illinois	"	1,000 "
Iowa City	"	1,500 "
Danville, Illinois	"	1,500 "
Tippecanoe, Ohio	"	500 "
Rockford, Illinois	"	1,000 "
Pekin, Illinois	"	500 "
Marshalltown, Iowa	"	3,000 "

We may safely assume that at the present time one-half of these new factories are in running order. The total daily consumption of corn, therefore, for sugar and syrup making is not far from thirty-five thousand bushels.

Eleven million bushels of corn during the present year will be used for this purpose, and every indication leads us to believe that the amount will be doubled in 1882.

The capital invested in this sugar industry is likewise no inconsiderable one. Taking the large and small establishments together, each thousand bushels of daily capacity represent sixty thousand dollars of capital. Over two million dollars are therefore actively employed in the glucose-works. The number of men employed amounts to about sixty for each thousand bushels capacity, making a total of twenty-one hundred. On account of the nature of the process of manufacture, the mills are run night and day, and work is not entirely suspended on Sunday.

To avoid confusion of ideas, the following statements seem necessary: the word *glucose*, in this country, is employed among dealers to designate exclusively the thick syrup which is made from corn-starch. On the other hand, *grape-sugar* is applied to the solid product obtained from the same source. The *glucose* and *grape-sugar* of the trade have optical and chemical properties quite different from many other substances bearing the same name. I shall use the words in the signification explained above.

PROPERTIES OF GLUCOSE.—Glucose is a thick, tenacious syrup, almost colorless, or of a yellowish tint. It has an average specific gravity, at 20° C., of 1.412. That which is made for summer consumption is a little denser than that manufactured for winter use. This syrup is so thick that, in the winter, it is quite difficult to pour it from one vessel to another.

The sweetness of glucose—*i. e.*, the intensity of the impression it makes on the nerves of taste—varies greatly with different specimens. Some kinds approach in intensity the sweetness of cane-sugar, while others seem to act slowly and feebly. It has been shown that the degree of sweetness depends on the extent of the chemical changes which go on in the conversion of starch into sugar. When the process of conversion is stopped as soon as the starch has disappeared, the resulting glucose has a maximum sweetness.* The color of glucose depends on the thorough washing of the substance, during the process of manufacture, through animal charcoal, and lowness of temperature at which it is evaporated, and rapidity of evaporation. The methods of securing these conditions will be described further on.

There is one variety of glucose which is made for confectioners' use, which is much thicker and denser than that just described. Its specific gravity may reach 1.440, but it has no tendency to become hard and solid, like the so-called grape-sugar.

The grape-sugar made from corn-starch, when well made, is pure white in color when first made, but has a tendency to assume a yellowish tint when old. It is hard and brittle, does not usually take on a visible crystalline structure, and is less soluble in water than cane-sugar. Perhaps it would be more accurate to say that it dissolves more slowly, since both cane and grape-sugar dissolve in all proportions in hot water. I have found its specific gravity to be as high as 1.6. It is much less sweet to the taste than glucose, and a faint bitter after-taste is to be perceived.

USES OF GLUCOSE AND GRAPE-SUGAR.—Glucose is used chiefly for the manufacture of table syrups, candies, as food for bees, for brewing, and for artificial honey.

It is impossible at present to get any reliable statistics concerning the amount of glucose used

*According to the latest accounts, a new factory is about to be built at Chicago, having a capacity of working up 25,000 bushels of corn per *day*.—ED. N. R.

* See paper read by the author at the Boston meeting of the American Association for the Advancement of Science.

in beer-making. The brewers themselves try to keep its use a secret, since it is quite common to proclaim that beer is made from barley and hops alone, although this is rarely the case. Dealers and manufacturers are likewise reticent when approached on this subject, since it is but natural for them to wish to protect the interests of their patrons. We shall not go far wrong, however, when we say that the amount of glucose used by brewers is by no means small, and that the quantity is constantly increasing. I do not know any reason why its moderate use should injure the quality of the beer.

Bees eat glucose with the greatest avidity, or, rather, they act as funnels by which the glucose is poured into the comb. For it is quite true that honey made by bees which have free access to glucose differs scarcely at all from the glucose itself. But the quantity of honey which a bee will store away when fed on glucose is truly wonderful. This gluttony, however, rapidly undermines the apiarian constitution, and the bee rarely lives to enjoy the fruits of its apparent good fortune. In commercial honey, which is entirely free from bee mediation, the comb is made of paraffin, and filled with pure glucose by appropriate machinery. This honey, for whiteness and beauty, rivals the celebrated real white-clover honey of Vermont, but can be sold at an immense profit at one-half the price.

All soft candies, waxes, and taffies, and a large proportion of stick-candies and caramels, are made of glucose. Very often a little cane-sugar is mixed with the glucose, in order to give a sweeter taste to the candies, but the amount of this is made as small as possible. As has been stated above, the glucose which is used in confections is evaporated nearer to dryness than that which is used for syrups. In such glucoses I have found the percentage of water to be as low as 6.37. Such a product is almost thick enough for "taffy" without any further concentration.

A very large percentage of all the glucose made is used for the manufacture of table syrups. The process of manufacture is a very simple one:

The glucose is mixed with some kind of cane-sugar syrup until the tint reaches a certain standard. The amount of cane-sugar syrup required varies from three to ten per cent, according to circumstances. These syrups are graded A, B, C, etc., the tint growing deeper with each succeeding letter.

When these syrups are sent into the shops, they are sold to consumers under such altisonant names as "Maple Drip," "Bon Ton," "Upper Ten," "Magnolia," "Extra Choice," "Golden Drip," "White-Loaf Drip," etc. Dealers tell me that these syrups, by their cheapness and excellence, have driven all the others out of the market. So much is this the case that it is no longer proper to call glucose the "coming syrup." It is the syrup which has already come.

In addition to the uses above mentioned, small quantities of glucose are used by vinegar-makers, tobacconists, wine-makers, distillers, mucilage-makers, and perhaps for some other purposes.

Grape-sugar is also used for many of the purposes enumerated above, but chiefly for the adulteration of other sugars. When it is reduced to fine powder, it can be mixed with cane-sugar in any proportions, without altering its appearance. Since the grape-sugar costs less than half the price of cane-sugar, this adulteration proves immensely profitable. The presence of grape-sugar in table-sugars can be approximately determined by several simple tests. When placed on the tongue, the bitter after-taste, already spoken of, may be detected. If spread in a thin layer on a piece of glass, and treated with a little water, the cane-sugar granules dissolve first, and the grape-sugar is left as a flocculent mass. With the microscope, its particles can be detected by the absence of all crystalline structure. Its exact quantity can only be determined by the polariscope. This is hardly a proper place to describe how this is done.

From the best information I can obtain, it appears that the cost of manufacture of glucose and grape-sugar is about one cent a pound. From twenty-six to thirty-two pounds are made from a bushel of corn. It is sold by the manufactories at three to four cents per pound. In the West the price of corn during the last year has averaged a little over thirty cents per bushel. It thus appears that the manufacture of glucose is a profitable industry.

I shall attempt here no detailed statement of the method of manufacture, but give only such an outline as may interest those who like to know how the things on their tables are prepared. The corn is first soaked for two or three days in warm water, and is then ground on specially prepared stones with a stream of water. The meal is next passed into a trough, the bottom of which is made of fine bolting-cloth. Here the starch is washed through, and led to large tanks, where it is allowed to settle. It is next beaten up with caustic soda to separate the gluten, and the starch is again allowed to settle in long, shallow troughs. The starch, washed from all adhering alkali, is next beaten up with water into a cream, and conducted into the converting-tubs. These tubs are supplied with coils of copper steam-piping and are made of wood. Here the starch-cream is treated with dilute sulphuric acid, and steam is allowed to bubble up through the mixture from small holes in the copper pipes. This process of conversion, which is called "open conversion," is completed in about two hours.

Another method is called "close conversion." The substances are inclosed in stout copper cylinders, and subjected to the action of superheated steam. This process occupies about fifteen minutes.

The conversion is also accomplished sometimes by fermentation. This requires a much longer time. The greater part of it, however, is carried on by the method first named.

After conversion the acid is neutralized by marble-dust and animal charcoal. Since the sulphate of calcium, which is formed in this operation, is slightly soluble in water, carbonate of barium has been used instead of marble-dust. Its use, however, has not become general.

After neutralization the liquid is filtered through cloth and animal charcoal, and is then conveyed to the vacuum-pan. Here it is evaporated, at as low a temperature as possible, to the required concentration. If grape-sugar is to be made, the process of conversion is not stopped as soon as the starch has disappeared, but is carried on still further to a point which can only be determined by trial. After concentration it is conveyed into tanks, where the process of solidification begins and continues for several days.

Glucose, on the other hand, will not harden, whatever the degree of concentration may be, or, at least, if it do so, only partially and after many months.

The habit of bleaching both glucose and grape-sugar by means of sulphurous acid is sometimes practised, but is reprehensible. By the oxidation of the sulphurous acid, free sulphuric acid is likely to occur in the finished product.

Glucose and grape-sugar are mixtures of several chemical substances. Starch, which is composed of six atoms of carbon, ten of hydrogen, and five of oxygen, when subjected to the action of dilute sulphuric acid, appears to undergo a molecular condensation and hydration. Among the substances formed may be reckoned dextrin, glucose, and a substance isomeric with cane-sugar. This latter substance appears to be one of the early products of conversion, and this is the reason that the poorly converted glucoses are sweeter than the well converted. It is only after prolonged boiling with dilute acid that the product becomes chemically homogeneous, with a constitution which is probably represented by the symbol $C_6H_{12}O_6.H_2O$.

Glucose presents several anomalies when examined with polarized light. Its highest rotatory power is found when it is made with the least possible amount of conversion—*i. e.*, when the process of conversion is stopped as soon as the starch has disappeared. Continued boiling with dilute acid causes a gradual decrease of rotatory power. It is only after six to eight hours' heating to a temperature of 104° C. that a constant rotatory power is reached. This power is only about half that exhibited by the glucose as a maximum. This minimum rotatory power, however, is greater than that possessed by cane-sugar.

Glucose, like many other bodies, has the property of reducing a hot alkaline copper solution and separating the metal as a red sub-oxide. This power in glucose is always inversely as the rotating power. I have shown this fully and conclusively in the paper already referred to. The relation between reducing power and rotating power is a constant one, and hence the percentage of reducing power can be calculated from the polarimetric observations. This, however, is of more interest to the practical chemist than to the general reader, and I therefore pass it by.

The question of most practical importance is, "Is glucose a wholesome article of food?" I do not hesitate to answer this question in the affirmative. I mean by this, however, a glucose which is properly made. Such a glucose contains only a very little sulphuric acid and lime, not much more than good spring-water, and perhaps an almost infinitesimal trace of copper, so slight as only to be detected in a large quantity of the substance. I do not doubt but that glucoses have been sold which contain large quantities of free sulphuric acid and likewise other injurious ingredients. But these are due to carelessness in manufacture, and are not constituents of the genuine article. I have never found a glucose of this kind. Many of the impurities which have been imputed to glucose really belong to the cane-syrups with which they have been mixed. These largely adulterated glucoses should always be looked upon with suspicion. The cane-syrups, which are used for this purpose, yield from three to five per cent of ash, while the ash from a genuine glucose is so little as to be almost unweighable.

There is no reason to believe that a glucose or grape-sugar properly manufactured is any less wholesome than cane or maple-sugar. Corn, the new American king, now supplies us with bread, meat, and sugar, which we need, as well as with the whiskey which we could do without.—*Popular Science Monthly.*

Alcohol in Nature—its Presence in the Earth, Water, and Atmosphere.

A CHEMIST of merit, Mr. A. Müntz, who has already made himself known by important labors and by analytical researches of great precision, has been led to a very curious and totally unexpected discovery, on the subject of which he has kindly given us information in detail, which we place before our readers.* Mr. Müntz has discovered that arable soil, waters of the ocean and streams, and the atmosphere contain traces of alcohol: and that this compound, formed by the fermentation of organic matters, is everywhere distributed throughout nature. We should add that only infinitesimal quantities are involved—reaching only the proportion of millionths—yet the fact, for all that, offers a no less powerful

*The accompanying engravings have been made from drawings of the apparatus in the laboratory of which Mr. Müntz is director, at the Agronomic Institute.

interest. The method of analysis which has permitted the facts to be shown is very elegant and scrupulously exact, and is worthy of being made known.

Mr. Müntz's method of procedure is as follows: He submits to distillation three or four gallons of snow, rain, or sea water in an apparatus such as shown in Fig. 1. The part which serves as a boiler, and which holds the liquid to be distilled, is a milk-can, B. The vapors given off through the action of the heat circulate through a leaden

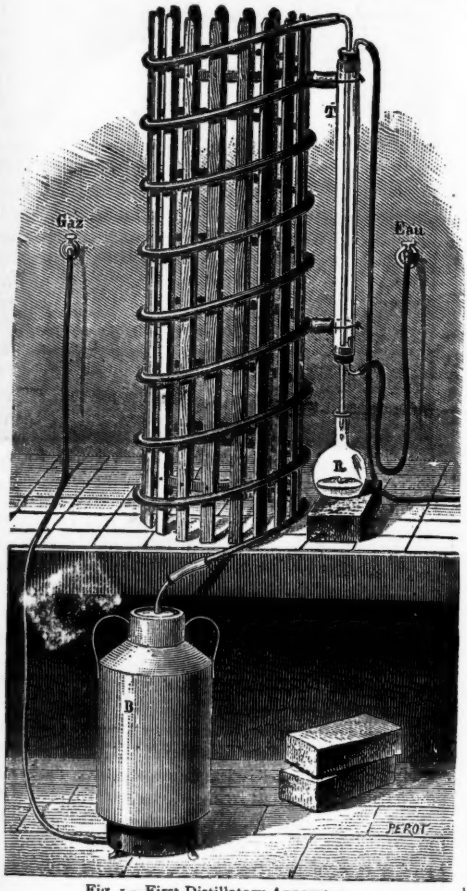


Fig. 1.—First Distillatory Apparatus.

tube some thirty-three feet in length, and then traverse a tube inclosed within a refrigerating cylinder, T, which is kept constantly cold by a current of water. They are finally condensed in a glask flask, R, which forms the receiver. When 100 or 150 cubic centimeters of condensed liquid (which contains all the alcohol) are collected in the receiver, the operations are suspended. The liquid thus obtained is distilled anew in a second apparatus, which is analogous to the preceding and much smaller (Fig. 2). The liquid is heated in the flask, B, and its vapor, after traversing a glass worm, is condensed in the tube, T. The operation is suspended as soon as five or six cubic centimeters of the condensed liquid have been collected in the test-tube, R. The latter is now removed, and to its liquid contents, there is added a small quantity of iodine and carbonate of soda. The mixture is slightly heated, and soon there are seen forming, through precipitation, small crystals of iodoform. Under such cirumstances, iodoform could only have been formed through the presence of an alcohol in the

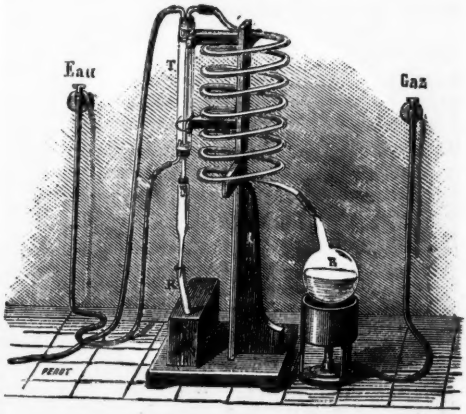


Fig. 2.—Second Distillatory Apparatus.

Fig. 3.—Iodoform Crystals Obtained Directly (greatly magnified).

liquid. These analytical operations are verified by Mr. Müntz as follows: He distils in the same apparatus three or four gallons of chemically pure distilled water, and ascertains positively that under these conditions iodine and carbonate of soda give absolutely no reaction. Finally, to complete the demonstration and to ascertain the approximate quantity of alcohol contained in natural waters, he undertakes the double fractional distillation of a certain quantity of pure

water to which he has previously added a one-millionth part of alcohol. Under these circumstances the iodine and carbonate of soda give a precipitate of iodoform exactly similar to that obtained by treating natural waters.

In the case of arable soil, Mr. Müntz stirs up a weighed quantity of the material to be analyzed in a certain proportion of water, distils it in the smaller of the two apparatus, and detects the alcohol by means of the same operation as before.

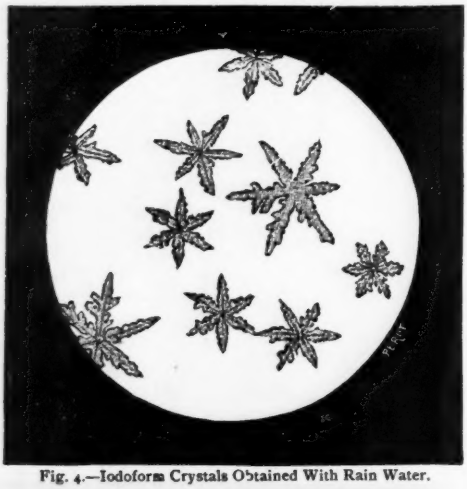


Fig. 4.—Iodoform Crystals Obtained With Rain Water.

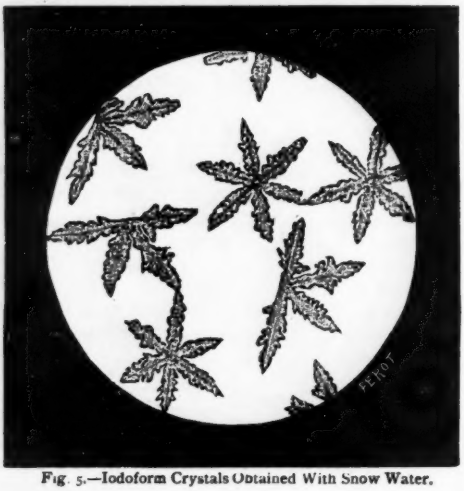


Fig. 5.—Iodoform Crystals Obtained With Snow Water.

The formation of iodoform by precipitation under the action of iodine and carbonate of soda is a very sensitive test for alcohol. Iodoform has sharply defined characters which allow of its being very easily distinguished. Its crystalline form, especially, is entirely typical, its color is pale yellowish, and, when it is examined under the microscope, it is seen to be in the form of six-pointed stars precisely like the crystalline form of snow. Mr. Müntz has not been contented to merely submit the iodoform precipitates obtained by him to microscopical examination, but has preserved the aspect of his preparations by means of micro-photography. The figures annexed show some of the most characteristic of the proofs. Fig. 1 shows crystals of iodoform obtained with pure water to which one-millionth part of alcohol had been added. Fig. 2 exhibits the form of the crystals obtained with rain water;

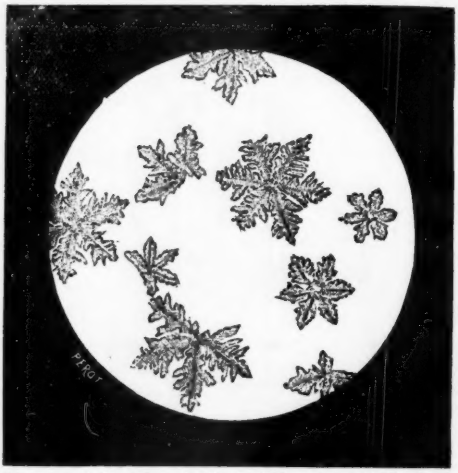


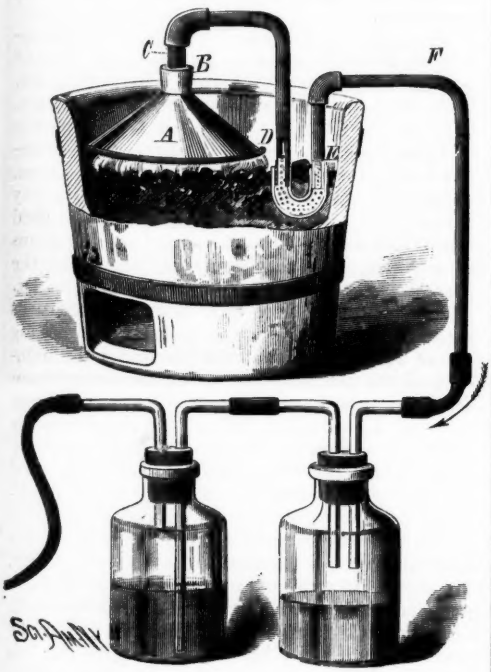
Fig. 6.—Iodoform Crystals Obtained With Vegetable Mould.

and Fig. 3, those with snow water. Fig. 4 shows crystals obtained with arable soil or garden mould. The first of Mr. Müntz's experiments were made about four years ago; but since that time he has treated a great number of rain and snow waters collected both at Paris and in the country. At every distillation all the apparatus was cleansed by prolonged washing in a current of steam; and, in order to confirm each analysis, a corresponding experiment was made like the one before mentioned. More than eighty trials gave results which were exactly identical. The quantity of alcohol contained in rain, snow, and sea waters, may be estimated at from one to several millionths. Cold water and melted snow seem to contain larger proportions of it than tepid waters. In the waters of the Seine it is found in appreciable quantities, and in sewage waters the proportions increase very preceptibly. Vegetable mould is quite rich in it; indeed it is quite likely that alcohol in its natural state has its origin in the soil through the fermentation of the organic matters contained therein. It is afterward disseminated throughout the atmosphere in the state of vapor and becomes combined with the aqueous vapors whenever they become condensed. The results which we have just recorded are, as far known to us, absolutely new: they constitute a work which is entirely original, which very happily goes to complete the history of the com-

position of the soil and atmosphere, and which does great credit to its author.—*Sci. Amer.* from *La Nature.*

Oxygen Gas from Bleaching Powder.

HITHERTO oxygen, when required in anything like a pure or undiluted state—as for the lime light, oxy-hydrogen blow-pipe, etc.—has been obtained almost exclusively from potassium chlorate by heating that salt to decomposition in the presence of peroxide of manganese. Pure potassium chlorate yields nearly one-third its weight of oxygen. The commercial salt is



never chemically pure, however, and in practice it rarely yields more than twenty-three gallons per pound (at 60° Fah. and normal pressure) of gas, the latter frequently containing much chlorine. The salt costs at wholesale twenty-five cents a pound, and requires to be mixed with about one-quarter of its weight of peroxide of maganese, costing eight cents a pound, thus making the cost of the gas for materials alone about nine cents a cubic foot.

Where economy is considered, common bleaching powder or chlorinated lime can be made to profitably take the place of the more expensive salt as a source of oxygen.

An average sample of bleaching powder (fresh) contains at least twenty-six per cent of calcium hypochlorite. This substance, when heated to the boiling point of water, splits up into calcium chloride and calcium chlorate. If the heat is increased to low redness, the chlorate is decomposed into calcium chloride and oxygen. During the elevation of temperature some hydrochlorous acid is apt to pass off; but if the apparatus is so arranged that the gas is forced to pass over or through a small quantity of heated lime, it is arrested, decomposed, and the oxygen liberated—oxygen and steam only passing over. In a series of late experiments with an apparatus similar to that described below, the yield in oxygen per pound of common commercial bleaching powder, costing one and three-quarter cents, averaged four gallons, making the cost of materials for oxygen from this source about three and one-quarter cents per cubic foot, as compared with nine cents where potassium chlorate is used. The gas, after passing through the wash bottles, is perfectly odorless and nearly pure.

When the gas is required in small quantities a few cubic feet at a time, the following simple and inexpensive apparatus answers very well:

The retort *A* is made of common sheet iron doubly lapped and riveted. The short neck, *B*, is slightly flaring so as to admit of the luting in of a piece of inch steam pipe. This pipe, *C*, is connected by a screw cap or elbow with a longer piece of similar pipe bent somewhat and extending downwards two or three inches below the bottom of the retort, where it is joined by a *U* cap at its lower end with a third piece of iron pipe extending upward above the bottom line of the retort. A fourth piece of pipe is connected with this latter at right angles for convenience of attachment to condenser and wash bottle. The space from *D* to *E* in the tube is loosely filled with fragments of quicklime, each somewhat larger than a pea. Two or three pounds of the chlorinated lime having been put into the retort, the pipe, *B*, is loosely inserted in the neck and the joint made tight with a stiff luting of clay or plaster of Paris.

The retort is then placed on a charcoal or other moderate fire, the portion of the pipe containing the lime being in the fire. Connection is made with the condenser and wash bottle as soon as steam begins to come over, and as soon as the air in the apparatus has been displaced, connection is made by rubber tubing with the gas bag or reservoir. The moisture in the heated substance first passes off together with some gaseous matter, the latter being decomposed by the lime; then, as the temperature rises and approaches low redness, oxygen is rapidly disengaged, and if the fire is good, ten minutes' heating will suffice to exhaust the charge.

The stop-cock at bag or reservoir having been closed, the retort may be slipped out, another similar one already charged put in its place, and the operation repeated if desired.

The chloride of lime should not be too moist when placed in the retort, or the charge greater

than will loosely cover the bottom of the vessel to a depth of one and one-half inches. If a sudden pressure greater than the delivery pipe can relieve is developed in the retort, the luted joint acts as a safety valve.

The sheet iron retorts do not, of course, last very long under such treatment. If the pipes are well washed on the inside with a thin paste of ochre and water and allowed to dry, the gas and vapors passed through will not affect them much after the first charge.

The lime in the tubes is usually sufficient for two or three charges. It is better to renew it frequently, as it is gradually converted into calcium chloride, which melts on heating and when cooled requires to be washed out.

On a larger scale, retorts similar in form to those used in making coal gas may be advantageously employed, the large delivery tube, partly filled with fragments of quicklime, being arranged so as to pass over the fire and be kept at a low red heat.—*Scient. Amer.*, June 11th.

Anæsthetics.

ABSTRACT OF A MONOGRAPH ON THIS SUBJECT BY DR. EDWARD TAUBER.*

HISTORY.—The idea of making man insensible to pain during operation is a very natural one, and in the writings of ancient authors are to be found accounts of attempts to accomplish this object. The Greeks and Romans believed that the so-called Memphitic stone, powdered and dissolved in vinegar, deadened pain. Mandragora, in form of decoction, had the same reputation, and appears to have been used as a stupefying drink down to the middle ages. The ancient Hebrews, and later on the Mohammedans, appear likewise to have used some narcotic during the operation of circumcision. Cannabis indica was employed by the Chinese already in the third century. Hugues de Lucques, in the twelfth century, stupefied his patients by means of a sponge saturated with the juice of hyoscyamus, conium, lactuca, mandragora, opium, a species of solanum, etc., and resuscitated them by causing them to inhale vinegar or by injecting the juice of rue into their ears. Boccaccio, in his Decamerone (xxxix.) relates of his contemporary, the surgeon Mazzeo della Montagna, of the school of Salerno, that, whenever he operated upon patients, he always narcotized them by means of a water prepared by himself. At the end of last century, nerve-pressure was employed in England as an anæsthetic. In 1795 Richard Pearson used ether-inhalations for soothing pain in certain diseases, and Nysten, in 1806, described an apparatus for the inhalation of ether-vapor. Finally, Sir Humphrey Davy, in 1818, experimented upon himself with laughing-gas and freed himself, by its inhalation, of violent toothache. Nevertheless, all these and various other methods previously used were not thought of as means for deadening pain during operations.

The real discoverer and first employer of operative anæsthetics was Dr. Horace Wells,* dentist at Hartford. In December, 1844, Dr. Wells attended a chemical lecture of Dr. Colton, in which the latter demonstrated the properties of laughing-gas. Several of the spectators desired to try the effects of the gas upon themselves, among them a Mr. Cooleg, who was thereby thrown into such an excitement that he injured himself on the leg without having been conscious of any pain. Wells immediately grasped the idea of anæsthesia and communicated it to Dr. Colton, who coincided with him. He afterwards made an experiment upon himself, by having one of his teeth extracted while under the influence of the gas; as soon as he recovered from the operation he exclaimed: "A new era in surgery! I have felt no more pain than from the pricking of a pin!" Wells thereupon went to Boston, laid his discovery before the medical faculty, also communicated it to several physicians, and performed several successful dental operations with the aid of laughing-gas. It has been proved by reliable witnesses that Wells, already in 1845, also examined the anæsthetic properties of ether, but that he did not find it as effective as laughing-gas. Soon afterwards he was compelled, by ill health, to give up his practice, but he continued to improve and to promulgate his discovery, and showed its usefulness for surgery in general. The first larger operations, in which he himself conducted anæsthesia, were performed by Dr. Mary (August 17th, 1847: operation for hydrocele; described in *Boston Med. and Surg. Journ.*, 1847) and by Dr. Beresford (Jan. 1st, amputation of breast).

Wells had the misfortune of being deceived by false friends, particularly by Wm. T. G. Morton and Charles T. Jackson, to whom he confided his discovery and who appropriated it. In vain he tried to obtain justice, and this made him so unhappy that he committed suicide, twenty days after the last operation conducted

* *Die Anæsthetica. Eine Monographie mit besonderer Berücksichtigung von zwei neuen anæsthetischen Mitteln.* Kritisch und experimentell bearbeitet von DR. EDWARD TAUBER, 8vo. Berlin, 1881, pp. 116.

We have included in our abstract the German chemical names, and have added synonyms, both in English and in German. To distinguish the German names given by the author from the synonyms added by us, we have inclosed the latter in brackets [ ]. The series of names will be found very useful for reference, since there is great confusion of some of these terms among physicians and pharmacists, as well as among dealers. Those who wish to consult the details of results of physiological experiments made with the agents mentioned in the paper, should consult the original pamphlet.—ED. N. R.

* The literature of the history of modern anæsthetics is very considerable. It is very fully quoted in the *Index-Catalogue of the Surgeon-General's Library, U. S. A.*, vol. I., pp. 290–291.

by him, by opening an artery and inhaling ether until he became unconscious.

It was during October, 1846, that Jackson, after having made experiments on himself, introduced ether into surgical practice in Boston. He communicated its anæsthetic powers to his friend, the dentist Morton, of Boston, who began to use it extensively in his practice, but at the same time tried to make a monopoly of it by applying, in conjunction with Jackson, for a patent, both in the United States and in England. His agent, James Door, notified the editor of the *Lancet* that the employment of ether as an anæsthetic had been granted a patent for England and the Colonies, whereupon the beforementioned editor received a letter from a lawyer and Queen's counsel, in which the latter declared that no patent upon medical or surgical discoveries was valid in England.

In consequence of this decision, the employment of ether in surgical practice soon became universal.

Simpson, induced by the experience gained with ether, began to experiment with other volatile bodies, among them acetone, nitrate of ethyl, benzin, iodoform, chloroform, etc. The latter was discovered to share the prominent anæsthetic properties of ether, and to have, besides, some other advantages. After about fifty trials, mostly made upon women in labor, Simpson announced his discovery, and the latter was soon disseminated abroad. Yet chloroform did not displace ether entirely, particularly in England and America, where the latter is still most generally used. Though numerous cases of death from chloroform were reported, particularly during the earlier period of its use, and a long-continued dispute arose on the respective advantages of the two agents, yet chloroform is still used [almost? Ed. N. R] exclusively in France and Germany, while the so-called "mixed narcosis" (3 parts of ether, 1 part chloroform) is used in Austria. Billroth is lately reported to use exclusively a mixture of 1 p. of ether, 1 p. of absolute alcohol, and 3 p. of chloroform.

The fatal results of the use of chloroform stimulated the search after other anæsthetics, and, in the course of time, the following agents have been successively tried with more or less success, two of which have been specially studied by the author of the present paper, and for the first time introduced to the notice of the profession.

I. Methyl Series.

1. *Methyl Hydride; Methane; Marsh-gas* (*Germ.:* Methylwasserstoff; Methan); CH_4.—Odorless, inflammable gas, insoluble in water. Spec. gr 0.559.—According to Richardson, this may be inhaled for a short time without inconvenience. To produce narcosis, a mixture of air and gas, containing at least 75 to 80% of the latter, is required. Narcosis takes place without previous excitement, and rapidly disappears under admission of fresh air. The agent is unfit for practical use.

2. *Methyl Chloride; Monochloromethane* (*Germ.:* Methylchlorür; Chlormethyl); CH_3Cl.—Colorless gas of an ethereal odor, liquefying at $-22°$ C., of a sweet taste and burning with a greenish-white flame. Reports on the effectiveness of this agent vary; it has only been experimented with on animals.

3. *Dichloromethane* (*Germ.:* Methylenchlorid, [Bichlormethan]); CH_2Cl_2.—Colorless liquid of spec. gr. 1.36 at 0° C. Boils at 40° C. Miscible with ether and chloroform in all proportions. Produced by the action of chlorine upon methyl chloride, or by treating chloroform with zinc and ammonia.

The effects or dichloromethane have been variously reported on. In general it may be said that it is an effective anæsthetic, similar in its operation to chloroform, but not superior to the latter; on the contrary it is even more dangerous.

4. *Chloroform; Methenyl chloride* (*Germ.:* Chloroform; [Methenylchlorid]; Formyltrichlorür; [Trichlormethan]); $CHCl_3$.—Colorless liquid, of a sweet ethereal odor, not miscible with water, spec. gr. 1.48, and boiling at 61° C. Prepared either by the distillation of alcohol, water, and chloride of lime, with subsequent purification by means of sulphuric acid and redistillation, or else, by decomposing chloral hydrate with caustic alkalies (this variety is usually called in commerce "chloral chloroform").

It has not been ascertained as yet how chloroform affects the blood of live animals or man, nor have any products of its decomposition (formic acid, hydrochloric acid) been discovered in the organism. The effects of chloroform upon man may be divided into two stages, that of the excitement and that of subsequent paralysis, both of which vary in duration and intensity according to the individuality of the person. In persons addicted to drink, for instance, the stage of excitement may become intensified to madness, and in some cases complete narcosis begins only after the inhalation of fatal doses. So far as known, chloroform appears to affect first the cerebrum, then the cerebellum, next the spinal marrow, in which the sensory plexus is first paralyzed, afterwards the motor plexus. The medulla oblongata is affected last; when this is paralyzed, death ensues. Chloroform narcosis is also accompanied by a lowering of the blood pressure, a decrease in energy of the heart's action, and a depression of the temperature.

5. *Bromoform; Methenyl bromide* (*Germ.:* Bromoform; [Methenylbromid; Tribrommethan; Formyltribromid]); $CHBr_3$.—Colorless liquid, of an odor resembling chloroform, boiling at 152° C., and having a spec. gr. of 2.9 at 12° C.; congealing at $-9°$ C. Produced by the action of

bromine upon a solution of 1 p. of potassium hydrate in 1 p. of methylic alcohol; also by warming carbon tetrabromide with alcoholic solution of ammonia, etc.

Appears to have about the same effect as chloroform.

6. *Iodoform; Methenyl iodide* (*Germ.:* Jodoform; [Trijodmethan]); CHI_3.—Yellow scales, melting at 119° C., of a saffron-like odor. Formed by the action of iodine upon alcohol in presence of caustic alkalies.

Has narcotic properties, but has never been used as a real anæsthetic.

7. *Carbon Tetrachloride; Tetrachloromethane,* (*Germ.:* Tetrachlorkohlenstoff); CCl_4.—Colorless, aromatic liquid, boiling at 67°C., and of the spec. gr. 1.6. Obtained by the action of chlorine upon chloroform in sunlight.

Its use is accompanied by much greater risk than that of chloroform. It is unsuited for surgical practice.

II. ETHYL-SERIES.

8. *Ethyl Hydride; Ethane* (*Germ.:* Aethylwasserstoff; Aethan; [Dimethyl]); $CH_3.CH_3 = C_2H_6$.—Colorless and odorless gas, burning with a faintly luminous flame. Produced by the action of water upon zinc-ethyl.

According to Richardson this acts like methane, as a negative gas, narcotizing and anæsthetizing.

9. *Ethene; Ethylene; Olefiant Gas* (*Germ.:* Aethylen; Elaylgas; Oelbildendes Gas; [Aetherin, Aceten, Aethen, Vinylwasserstoff, Schweres Kohlenwasserstoffgas]); $CH_2.CH_2 = C_2H_4$.—Colorless gas, of a disagreeable and suffocating odor, burning with a luminous flame.

Experiments on animals seem to show that the gas, if properly diluted with air, may possibly be used as an anæsthetic; but its safety is doubtful.

10. *Ethine; Acetylene* (*Germ.:* Acetylen; [Aethin]); $CH.CH = C_2H_2$.—Colorless gas, of strong, disagreeable odor, burning with luminous, smoky flame. Produced directly from its elements if an electric spark passes between carbon points in an atmosphere of hydrogen. Also produced by subjecting organic bodies to a very high temperature. A small amount is contained in illuminating gas.

This agent is unsafe.

11. *Ethyl Chloride; Chlorethane; Hydrochloric Ether* (*Germ.* Aethylchlorid; Chloræthyl; [Chloræthan; Aethylchlorür]); C_2H_5Cl.—A colorless liquid of an aromatic odor, boiling at 12° C. Obtained by the action of hydrochloric acid gas upon ethylic alcohol. Spec. gr. 0.917 at 8° C.

12. *Ethyl Bromide; Bromethane; Hydrobromic Ether* (*Germ.:* Aethylbromid; [Bromæthan; Bromæthyl]); C_2H_5Br.—Colorless liquid, of an agreeable ethereal odor, spec. gr. 1.47, and boiling at 41° C. Prepared by treating alcohol with gaseous hydrobromic acid, or by gradually dropping bromine into alcohol containing melted phosphorus.*

[This agent has been quite extensively used for a year or two past, but several fatal cases resulting from its use have somewhat shaken confidence in it.—See NEW REM., 1880, 143, 277, 365.]

13. *Ethyl Iodide; Iodethane; Hydriodic Ether;* (*Germ.:* Aethyljodid; [Jodæthan; Jodæthyl]); C_2H_5I.—Colorless liquid, boiling at 72° C. Prepared by gradually adding iodine to alcohol and amorphous phosphorus, allowing to stand 24 hours, and then distilling.

Has only been experimented with on animals.

14. *Ethene Chloride; Dutch Liquid* (*Germ.:* Aethylenchlorid; Elaylchlorür; Oel der Holländischen Chemiker;† [Elaylchlorid; Aetherinchlorid; Liquor Hollandicus]; $CH_2Cl.CH_2Cl = C_2H_4Cl_2$.—Colorless, ethereal liquid of sweetish taste and chloroform-like odor. Spec. gr. 1.256. Boils at 85° C. Burns with a greenish, smoky flame. Is isomeric with ethidene chloride (æthylidenchlorid). Produced by exposing a mixture of olefiant gas and chlorine to sun-light.

This agent was proposed as an anæsthetic shortly after the introduction of ether for this purpose; but it has never been much used, as it is apt to irritate the air-passages, and often causes protracted emesis.

15. *Ethidene Chloride* (*Germ.:* Aethylidenchlorid); $CH_3.CHCl = C_2H_4Cl_2$.—Colorless liquid, of a chloroform-like odor, spec. gr. 1.198 and boiling at 58–59° C. Isomeric with ethene chloride. Formed, as first product, by the action of chlorine upon ethyl chloride; also by the action of phosphoric chloride upon aldehyde.

Has been used by several operators with success; but a case of death from its use, which happened in Berlin, curtailed its further employment.

16. *Ethene Bromide* (*Germ.:* Aethylenbromid; [Elaylbromür; Elaylbromid; Aetherinbromid]); $CH_2Br\ CH_2Br = C_2H_4Br_2$. — Colorless, mobile liquid, of agreeable ethereal odor, congealing at 0° C. to a camphor-like mass. Boils at 129° C., is soluble in alcohol, ether and concentrated acetic acid. Spec. gr. 2.163 at 21° C. Formed by the direct action of bromine upon olefiant gas (ethene).

17. *Ethene Iodide* (*Germ.:* Aethylenjodid; [Elayljodür; Elayljodid; Aetherinjodid]); $CH_2I.CH_2I = C_2H_4I_2$.—Colorless crystals, quickly becoming red on exposure, of an aromatic odor and taste, sublimable at 100° C., and soluble only in alcohol, ether and ethereal oils. Formed by the action of sun-light upon olefiant gas (ethene) and iodine.

Both of the preceding are equally dangerous for the animal organism; the latter causing

* Another process, by Prof. J. P. Remington, is quoted in this journal, 1879, p. 8.

† Discovered by the Dutch chemists, Bondt, Lauwerenburgh, Deimann and Troostwyck, in 1795.

death by asphyxia, and the former by arresting the action of the heart.

[*Ethidene Bromide* (*Germ.:* Aethylidenbromid); $CH_3.CHBr_2=C_2H_4Br_2$—and *Ethidene Iodide* (*Germ.:* Aethylidenjodid); $CH_3.CHI_2=C_2H_4I_2$ are not mentioned by the author. They appear never to have been experimented with, so far.]

18. *Trichlorethane* (*Germ.:* Monochlorœthyliden-chlorid; Methylchloroform [*betier:* Dimethylchloroform; Trichlorœthan]; $CH_3.CCl_3=C_2H_3Cl_3$.—Colorless liquid, resembling chloroform in odor, of spec. gr. 1.372 at 16° C., and boiling at 75° C. Formed as second product during the action of chlorine upon ethyl chloride, the first product being ethidene chloride.* Trichlorethane is with difficulty attacked by alcoholic potassa; it is decomposed only after protracted boiling, forming potassium acetate and chloride. On its anæsthetic effects, see further on.

19. *Ethenyl Chloride* (*Germ.:* Monochlorœthylenchlorid; [Hyperchloracetyl]); $CH_2Cl.CHCl_2=C_2H_3Cl_3$.—Colorless liquid, of a chloroform-like odor. Spec. gr. 1.422. Boils at 115° C. Regnault obtained it, in 1838, by the action of vinyl chloride upon antimonic chloride; also by the action of chlorine upon ethene chloride (Dutch liquid).† Ethene chloride is decomposed, already in the cold, by alcoholic potassa, into chloroform and dichlorethene ($C_2H_2Cl_2$) boiling at 37° C.

On its anæsthetic effects, see further on.

20. *Chloral Hydrate; Trichloraldehyde* (*Germ.:* Chloralhydrat; Trichloraldehyd); $CCl_3.CHO.H_2O=C_2HCl_3O.H_2O$.—Chloral, $CCl_3.CHO=C_2HCl_3O$, discovered by Liebig in 1830, is obtained by the long-continued action of dry chlorine gas upon ethylic alcohol. The product is agitated with sulphuric acid and distilled. Chloral is a colorless liquid of penetrating odor, spec. gr. 1.502, and boils at 94.4° C. On bringing it in contact with just enough water, chloral-hydrate is produced, in colorless, monoclinic prisms, melting at 46° C., boiling at 96–98° C., and very soluble in water. Alkalies decompose chloral hydrate into chloroform and formic acid.

Liebreich entertained the view that the narcotic effect of chloral was due to its decomposition in the alkaline blood into formic acid and chloroform, the latter of which was the real agent. This view, however, is no longer tenable. (We must here refer to the original pamphlet.)

[To be continued.]

* I.: C_2H_5Cl (ethyl chloride) + Cl_2 (chlorine) = $C_2H_4Cl_2$ (ethidene chloride) + HCl (hydrochloric acid). II.: $C_2H_4Cl_2+Cl_2=C_2H_3Cl_3$ (trichlorethane) + HCl.

†$(C_2H_3)'Cl$ (vinyl chloride) + $SbCl_5$ (antimonic chloride) = $(C_2H_3)'''Cl_3$ (ethenyl chloride) + $SbCl_3$ (antimonious chloride).

$C_2H_4Cl_2$ (ethene chloride) + Cl_2 (chlorine) = $C_2H_3Cl_3$ (ethenyl chloride) + HCl (hydrochloric acid).

Ethenyl chloride is obtained as a by-product in the manufacture of chloral.

On Some New Color-Reactions of Morphia, Codeia, and Atropia.

Dr. Dioscoride Vitali, of Piacenza, communicates some new and interesting color-reactions of morphia, codeia, and atropia, which in certain cases may serve as confirmatory proofs of the presence or absence of these substances.

The new reaction for morphia is based upon a reaction previously observed by Tattersall. The latter found that, by treating a small quantity of morphia, in the cold, with very little arsenate of sodium and some concentrated sulphuric acid, there is produced a violet coloration, which passes into light-green on heating. According to Dr. Vitali, the above reaction makes its appearance only slowly in the cold; but on agitating the liquid with a glass rod, a bluish-red tint verging to violet is produced. By continuously heating, the color passes over into dark-green, dirty greenish-blue, and finally light-green [*a*]. But the change of color does not stop here: on cautiously adding some water, the color changes first to dark-red, then becomes decidedly blue; if, however, alcohol be added, the first drops produce a wine-red, and a larger quantity a most magnificent violet. If to the solution [*a*] some acetic acid be added, the color becomes wine-red; the further addition, to this solution, of a few drops of ammonia, so as to leave the liquid still acid, develops a magnificent blue; and on supersaturating with ammonia, this color passes into an intense green. In the same manner, the solution which has become blue by the addition of water (as before stated), and that which has been rendered violet by alcohol, become green with ammonia. The coloring matter remains suspended in the liquid, in a flocculent condition.

Morphia heated with sulphuric acid, in absence of arsenate of sodium, becomes first dark-red, and on pushing the heat, dark-green. If this solution be treated with water, alcohol, acetic acid, and ammonia, like the above solution containing arsenate of sodium, the same color-reactions are obtained, but the tints are not as vivid.

Another brilliant reaction of morphia is the following: if to a crystal of the alkaloid, in a porcelain capsule, a few drops of concentrated sulphuric acid be added, solution promoted by agitation, then a small drop of solution of sulphide of sodium be dropped in and the whole cautiously heated, the liquid assumes a flesh-colored tint, changing to intense violet, dark-green, and dirty green.

Again, if to a little morphia, in a capsule, two drops of sulphuric acid be added, then, after agitation, one drop of solution of sulphide of sodium, and finally one drop of a two-per-cent solution of chlorate of potassium in concentrated sulphuric acid, stirring with a glass rod develops a tint at first greenish, turning to blue with a tendency to violet. With an additional

drop the green becomes intense and passes, with continued stirring, into dark-blue; with more of the chlorate solution a yellowish tint is produced.

Codeine presents the same reactions, excepting in the following particular: while the solution of morphia in sulphuric acid with arsenate of sodium, when heated, turns dirty green, that of codeine, under similar circumstances, assumes a very handsome reddish-violet tint; on further heating it becomes green, and yields the same color reactions as morphia, with water, alcohol, acetic acid, and ammonia.

Atropine* gives also a similar interesting reaction. If a solid fragment of the alkaloid or one of its salts is moistened with a few drops of the solution of chlorate of potassium in sulphuric acid, the former becomes greenish-blue, and, on moving the liquid gently about in all directions, bluish-green streaks are seen to pass from the fragments through the liquid, which latter gradually assumes a pale-green color.—*Bolletino Farmaceut.* (Milano), 1881, 197.

Steatins.

Dr. W. H. Mielcke, apothecary at Hamburg, proposes a new class of preparations, intermediate between plaster and salve, for the external application of certain remedies which have heretofore been applied in an unsatisfactory manner, owing to various causes. These preparations would correspond to the class of cerates, but as they do not all contain wax, and their chief constituent is mostly mutton-tallow (sebum ovillum), he has named them "Steatina" (plur. of *steatinum.*)

The manipulation of these steatins requires no more trouble than the spreading of a plaster according to the old style, 10 square centimeters of muslin or other fabric requiring about 5 gm. (75 grains) of the mass. The author gives a number of working formulæ

1. *Steatinum Belladonnæ.*† Steatinof B.

Mutton tallow	5 parts
Lard	2 "
Lead-plaster	2 "

Melt together, allow to cool somewhat, and while the mass is still plastic, incorporate

Extract of belladonna	1 part

previously reduced to a syrupy consistence by means of a mixture of equal parts of water, alcohol, and glycerin. Mix intimately.

2. *Steatinum Chloral Camphoratum.* Camphorated Steatin of Chloral.

Chloral hydrate, in crusts	2 parts
Camphor	2 "
Yellow wax	5 "
Mutton tallow	11 "

Melt the chloral and camphor together in a small flask, with a gentle heat, so that a readily flowing liquid may be obtained. Add this to the other ingredients previously melted together at a low temperature.

3. *Steatinum Chloral.* Steatin of Chloral.

Chloral hydrate, in fine powder	2 parts
Olive oil	5 "
Mutton tallow	6 "
Yellow wax	7 "

Dissolve the chloral with a gentle heat in the olive oil; then add the solution to the other ingredients previously melted together.

4. *Steatinum Iodi.* Steatin of Iodine.

Iodine, in fine powder	1 part
Alcohol	3 parts
Castor oil	7 "
Mutton tallow	7 "
Yellow wax	7 "

Dissolve the iodine in the alcohol, then add the castor oil, add the mixture to the other ingredients, previously melted, at as low a temperature as possible. (Does not keep long.)

5. *Steatinum Iodoformi.* Steatin of Iodoform.

Mutton tallow	18 parts
Oil of nutmeg, expressed	2 "
Iodoform, in fine powder	1 part

Add the iodoform to the other ingredients previously melted, so that it may be quickly dissolved.

6. *Steatinum Hydrargyri.* Steatin of Mercury.

Mercury	25 parts
Mercurial ointment (old)	5 "
Lard	22 "
Mutton tallow	10 "
Lead plaster	18 "

Extinguish the mercury by trituration with the old mercurial ointment, then mix it, without delay, with the other ingredients previously melted together and partly congealed.

7. *Steatinum Opii.* Steatin of Opium.

Mutton tallow	22 parts
Castor oil	5 "
Liquid storax	3 "
Elemi	3 "
Balsam of Peru	2 part

Melt them together and let the mixture deposit any infusible or foreign matter. Then take of this

Purified mixture	25 parts
Lead plaster	15 "
Extract of opium	1 part

Melt the first two together and incorporate the latter previously made liquid with a mixture of 2 parts of water, 1 of alcohol and 1 of glycerin.

*On an interesting color-reaction of atropine see an abstract of the paper of the same author, in this journal, 1880, 339. We have since learned from Dr. Vitali—partly through letter, partly through published papers—that the reactions there given for atropine and daturine are likewise characteristic for hyoscyamine and duboisine, as we had surmised.—Ed. N. R.

†We have omitted a few formulæ of minor interest. We have also altered the *titles* so that they may correspond more nearly to the pharmaceutical terms used here. The author has the following: 4. Steatinum jodatum. 6. Steatinum mercuriale. 7. Steatinum opiatum. 8. Steatinum piceatum. 9. Steatinum sublimati. 10. Steatinum thymolatum.—Ed. N. R.

8 *Steatinum Picis.* Steatin of Tar.

Tar	12 parts
Mutton tallow	100 "

Digest the tar one day in a closed vessel, with the tallow, then pour off the clear liquid from the sediment and cool.

9. *Steatinum Hydrargyri Bichloridi.* Steatin of Bichloride of Mercury.

Bichloride of mercury	1 part
Alcohol	10 parts
Castor oil	50 "
Mutton tallow	900 "
White wax	50 "

Dissolve the bichloride of mercury in the alcohol, add the castor oil, and mix with the other ingredients, previously melted and somewhat cooled.

10. *Steatinum Thymol.* Steatin of Thymol.

Thymol	1 part
Olive oil	5 parts
Mutton tallow	190 "
Yellow wax	4 "

Dissolve the thymol in the olive oil and mix with the other ingredients previously melted and somewhat cooled.

11. *Steatinum Veratriæ.* Steatin of Veratria.

Mutton tallow	75 parts
White wax	10 "
Castor oil	15 "
Alcohol	10 "
Veratria	1 part
Oil of peppermint	q. s.
Oil of Lavender	q. s.

Dissolve the veratria in the alcohol, add the castor oil and sufficient of the essential oils, and add the whole to the tallow and wax previously melted, and partly cooled.

12. *Steatinum Chloroformi.* Steatin of Chloroform.

Chloroform	1 part
Olive oil	1 "
Mutton tallow	1 "
Yellow wax	2 parts

Mix the chloroform with olive oil, and add the solution to the other ingredients, previously melted together, at as low a temperature as possible.—*Pharm. Centralh.*, No. 20, 21.

Brandy [?] at the Birmingham Workhouse.—Not long ago the Board of Guardians on the suggestion of Dr. Mouat, one of the Local Government Board Inspectors, ordered *that all the brandy supplied to the sick inmates should be medicated.* According to the newspaper report, this was done by mixing 2½ oz. of brandy with 3½ oz. of "water and camphor." The medical officers were present when this resolution was adopted *and made no objection.* But on May 4th, Mr. Tomes moved that the resolution be rescinded, and that the brandy be given when necessary in the ordinary way. He moved thus, "on behalf of the sick, the aged, and the dying in the workhouse. He had had some experience in preparing nauseous mixtures, but he did not think he had ever been guilty of preparing anything so repulsive to the taste as this abominable mixture of camphorated and diluted brandy."—Various opinions as to the taste of the mixture were expressed, but ultimately 29 voted for Mr. Tomes's resolution, 14 against, while 6 remained neutral.—*Chem. and Drugg.*

RECENT PAPERS.

Quantitative Estimation of Carbolic Acid.—(E. WALLER). The author reviews the various qualitative tests for carbolic acid, and then passes to the methods of assay heretofore proposed, following which he proposes his own:

Taking the reaction described by Landolt (the precipitation of phenol by bromine), I have succeeded in obtaining what I believe to be a reliable method for the quantitative estimation of phenol. The results were obtained in 1873, and published the next year, not, however, in what I have heard called "the current of chemical literature," so that processes based upon this reaction have since been published* which have given the author the claim of priority in the matter. The method which I used is, however, somewhat simpler than the others.

The solutions necessary are:

(1) A solution of 10 grms. pure crystallized phenol in 1 liter of water. This solution serves as the standard with which to compare the results obtained on the samples analyzed. The solution will keep some months without alteration.

(2) Solution of bromine in water. In practice it has been found convenient to keep on hand two bottles, one with the bromine in the bottom, the other for the solution when it becomes sufficiently saturated.

(3) Solution of alum in dilute sulphuric acid. Dilute sulphuric acid containing about 100 cc. concentrated sulphuric acid in the liter is shaken with alum crystals until saturated.

The use of this solution is to aid in the ready separation of the bromine precipitate, by making it more dense, and by insuring the necessary acidity of the solution. The sulphuric acid also holds more alum in solution than pure water, which is an advantage. This solution is not absolutely indispensable, but in using it the analysis usually works more smoothly.

The process is conducted as follows: 10 gms. of the sample are weighed out and then run into a liter flask, water added, and the mixture shaken, the flask being finally filled up to the mark. After thorough mixing, some of the solution is filtered through a dry filter, and 10 cc. of the clear solution is run into a 6 or 8 oz. reagent bottle, fitted with a tight fitting glass stopper, about 30 cc. of the alum solution is added, and in a similar bottle 5 or 10 cc. of the standard phenol solution are placed, also with about 30 cc. of the alum solution. A burette is now filled with the solution of bromine, and from this the reagent is run into the bottle containing the standard solution of phenol until no more precipitate forms. The bottle must be stoppered and shaken after the addition of every few cc. Toward the end of the reaction the precipitate forms rather slowly, and when the phenol has been saturated, a very slight excess of bromine gives a yellow tint to the solution. Shaking the bottle causes the precipitate to separate readily, leaving the solution clear. The bromine water is usually taken of such a strength that about 30 cc. are required to precipitate the phenol from 10 cc. of the standard solution.

The solution from the sample is treated in the same way, and from the amount of bromine water required for each respectively, the percentage in the sample may be readily calculated. *E.g.*, if 5 cc. of the standard required 15 cc. bromine water, and 10 cc. of solution of the sample took 17 cc., the calculation would be

$$(15 \times 2) : 17 = 100 : x \text{ per cent.}$$

If, in weighing out, 10.25 gms. instead of 10 gms. had been taken, this result would have to be divided by 1.025 to get the true percentage.

As the precipitate rises to the top instead of settling to the bottom, it will be found convenient to use a small glass tube, a little longer than the bottle, and flared at the

* Koppescharr, *Fres. Zts. f. Analyt. Chem.*, xv., 233. Degener, *Journ. f. Prakt. Chem.*, N. F., xvii., 390.

top in funnel form, through which the bromine may be introduced into the clear solution. The bromine water held in the tube by capillary attraction can be gently blown into the solution without inconvenience to the operator.

With most of the samples of commercial phenol "carbolid acid," the precipitate will not readily separate from the solution, even by prolonged shaking. The solution may be at once cleared, however, by adding to it some of the precipitate already obtained by testing the standard phenol solution and shaking up.

The reaction is at an end when the further addition of bromine water fails to produce any precipitate. With pure phenol the solution only assumes a yellow color when an excess of the bromine is present, but with many of the commercial samples the solution has a yellow tint from the start, which, however, does not appear to deepen until the phenol or its homologues are saturated. The effect of the bromine upon the homologues of phenol, as cresol, florol, etc., is probably the same, and in conducting an analysis by this method, those substances are reckoned as phenol. The absence of aniline, toluidine, and similar bases which may be present in the coal-tar should be insured, as those bases also react in a similar manner with the bromine water. Usually the mode of preparing the commercial carbolic acid by means of alkaline solutions preclude this source of error; with a dead oil, however, the sample requires a preliminary treatment with a solution of some fixed alkali to remove them.

The bromine water does not, of course, keep the same standard throughout, but during a morning's work it varies very little. Until the solution gets low in the bottle, every other burette full seldom gives a variation greater than 0.1 to 0.2 cc. on 10 cc. of standard phenol solution. Unless the bromine water is allowed to stand in the burette for some time, the last portions have the same standard as the first.

The other quantitative methods using this reaction with bromine are somewhat more elaborate, an excess of bromine water being used, and the excess being titrated with sodium hyposulphite or detected by iodized starch paper. A stronger solution of bromine also is used, and the methods, though the same in principle, are quite different in detail.—*Chem. News*, April 1st.

Supposed Variability of the Percentage of Carbon in Strychnine.—AD. CLAUS and R. GLASSNER have arrived at very remarkable results, during a series of investigations on the molecular composition of strychnine. Hitherto the accepted formula for strychnine was $C_{21}H_{22}N_2O_2$; but from the results obtained by the authors, by acting upon strychnine with nitric acid, it appears that the alkaloid contained decidedly 22 atoms of carbon. The alkaloid, thus obtained, melted without decomposition, and constantly, at 284° C. On the other hand, the analytical figures previously obtained with strychnine derived from other sources, tally with the formula containing C_{21}. The authors, therefore, conclude that the molecular constitution of strychnine may actually vary by one atom of carbon—a theory which requires ample proof before it can be accepted, as no similar variability in composition of definite proximate principles has so far been recorded.

The authors found that, on boiling a solution of nitrate of strychnine in absolute (or nearly absolute) alcohol with nitric acid, a new base is produced which differs from the original strychnine (containing C_{22}) just by 1 atom of C., that is, which now contains C_{21}. Besides, the new base contains 3 molecules of NO_2 in place of 3 atoms of hydrogen, and 1 additional atom of oxygen. This new base, $C_{21}H_{19}(NO_2)_3N_2O_3$, is named *kakostrychnine* by the authors.—*Ber. d. D. Chem. Ges.*, 1881, 773.

A Fatal Case of Poisoning from Eating a Cantharides Plaster is one of the singular things to be found in the literature of toxicology. The *British Med. Jour.*, of June 25th, gives the details of such a case, in the person of a lad of 12 during convalescene from meningitis, in the course of which a blister had been employed. Tenderness of the belly, great restlessness, stupor, coma, and, finally, convulsions occurred.

Nostrums in their Relations to the Public Health.*

BY ALBERT B. PRESCOTT, M.D., F.C.S.

[Concluded from page 206.]

THE cosmetics on the market are mostly given without a proper statement of their ingredients, and, while many of them are harmless, many others contain substances that are injurious to the skin and to the system, substances so well known in the common information of the public that nobody would use them if their contents were declared. Among the liquid cosmetics—the lotions for ladies' use upon the skin—coming from time to time to analysis under the writer's observation, every little while there comes an exceptional one charged with corrosive sublimate. Some of these are clear solutions, some of them have a white powder of chalk or terra alba settling to the bottom; one of them had a white sediment of calomel (the insoluble chloride of mercury); most of them are delicately perfumed; a few are without odor; certain of them date from Paris and have labels in French, but they are alike in having the worst constituent of all cosmetics, for the corrosive chloride is rapidly absorbed through the skin. Some years ago, a collection of *twelve* cosmetics, lotions and powders, from the drug-stores of Ann Arbor, were found to be all innocent of mercurial or lead compounds. Three of them contained bismuth as subcarbonate or as "pearl white" (oxychloride), three contained zinc white, eight had chalk, seven had terra alba, and five had magnesia. Not less injurious than the corrosive sublimate, if long used, is the "white" lead put in some of the face-powders. A week or two since, a middle-aged woman, of intelligent address, applied for treatment at the University, and was found to be suffering under a paralysis unmistakably resulting from lead poisoning. As she had not been engaged in contact with the manufacture or use of lead paints, there was some perplexity as to the case, when inquiry was made about her use of cosmetics. Yes, she had used a certain "flake-white" for a long time—for thirteen years—getting it at different places wherever she had called for it. Then a portion was obtained from her, and, on analysis, was found to be wholly carbonate of lead, a levigated article of white lead. A celebrated French actor died in 1875, from lead poisoning due to use of lead colors in oil in making up his face for the stage. It is to be supposed that everybody is well enough warned about Hair Dyes, apt to consist of sugar of lead, or nitrate of silver, and the Hair Restorers are of the same sort. Two years ago, a New York chemist, Mr. Benjamin, reported on *twenty-one* Hair Dyes and Restorers. Six of these were harmless, and fifteen were poisonous, all containing lead. In conversation with an eastern dealer in chemicals, a few days ago, he remarked that there was beginning to be a considerable demand for peroxide of hydrogen. It would be a very useful disinfectant, but it is too expensive for that purpose. It is mostly used for the hair, in favoring the preference for blonde colors, and its expensiveness does not lessen its demand for this use.

In certain lines of nostrums, for diseases readily amenable to remedies or palliatives, there are found a considerable number of standard and efficient medicines. Of Cures for Asthma and Catarrh, an analysis of *six*, found belladonna and nitre in two, both to be used as fumigating pastiles; another pastile consisted of nitre and sawdust, with aromatics; one used as a snuff contained tobacco and asarabacca; another, a standard one, contained camphor, carbolic acid, golden seal, and common salt colored with prussian blue, while one for inhalation contained carbolic acid, camphor, and wintergreen oil. This last was entitled "carbolate of iodine," and was the only one of the six that made specific mention of any constituent, but the preparation did not contain iodine at all. The name contained the iodine, and in all nostrums the name is the principal thing.

Two years ago, a collection of *eight* specific nostrums for rheumatism, on sale in Detroit and Ann Arbor, were

*Reprinted from the *Physician and Surgeon.*

subjected to analysis at the University. Salicin, now much used by physicians in treatment of rheumatism, was found in three of them, iodides in two of them, and alkaline acetate, colchicum, and nitre, each, in one. One, in pill-form, contained only red pepper, licorice and sugar; and one, in a cochineal colored solution, held only alum and common salt. Of the eight, only one made declaration of any ingredient, and this one did contain the substance by which it was entitled. One of them claimed to be charged with electricity combined with essential oils; oil of organum and oil of tar were found, but the electricity must have evaporated before reaching the analysis.

Three years ago Prof. Richter published a summary of nine hundred and thirty-eight secret remedies analyzed by himself and other chemists. Of these he found twenty-two per cent having some violent or poisonous constituents, twenty-five per cent having medicinally powerful constituents, fifty-two per cent having only harmless or inert constituents.

It is the claim of the publishers of the secret remedies that they consist of newly-discovered articles not in general use by physicians, but only to be obtained in the nostrums offered. The public are impressed with the assertion, from each nostrum in its turn, that it contains articles not embraced in pharmacopœias, nor in current use among domestic remedies. These claims of originality are flatly contradicted by the results of analyses, and the analyses have been very extensive. The constituents found, so far as they are such as have any action on the system at all, are those of common use, well known, not only to physicians, but to most persons of ordinary information. As to the quantities of the medicinal ingredients in the dose directed, these are very irregular, and in few cases are they in true and efficient proportion.

It is particularly to be observed that the composition of a nostrum may be radically changed while it is steadily before the public under the same name and description. Several instances have been given in the brief categories which this occasion permits, and numerous others have been already revealed by analysts. A noted soothing syrup for children at one time was reported by at least three several analysts to contain morphine; of late years, the same advertised nostrum as mostly sold contains no morphine, but only some oil of fennel. It is very clear that, to a patent-medicine proprietor, the name and notoriety are everything, the ingredients and their proportions are very little, either in cost or consequence. He invests thousands in notoriety of a trade-mark, he secures it by copyright, it is his main investment, he may sell it or hold it, he may try to strengthen his investment by altering his nostrum so as to give it some popularity on its own merits, and in this alteration he may experiment, or he may be ready to realize on his investment the utmost profit by further cheapening its cost, and see how long it will run without any present merit of its own. The nostrum-maker fills his bottles behind closed doors, but he has published his name over the continent, at great expense, and it is *the name* that people are to buy, and take three times a day, and depend upon when dread disease is staring them in the face.

It may be submitted, now, that *the use of patent medicines without a knowledge of their composition does injury to the health of the people:*

(1) Because they may, and, in fact, sometimes do contain powerful or poisonous articles unsuspected.

(2) Because they always may be, and often are inert, and become a false reliance, to the neglect of other and due measures in the care of health.

(3) Because they are liable to be changed in composition, so that any experience of their effects, as they are purchased at one time, is not conclusive as to the same named articles purchased another time.

(4) Because it is submitting health to the treatment of a distant and irresponsible stranger, and learning to hazard health in an apparent game of chance.

(5) Because they are trusted to act as antidotes to disease in the sense in which no medicines can antidote disease.

(6) Because they favor excessive recourse to medication, and thereby increase the resort to physicians and intensify the demand for the physicians to give medicines whether needed or not.

(7) Because their analysis shows the greater part of them to be given with multiplied falsehood, and the patronage of falsehood must be demoralizing both to the mind and to the body.

Before considering how to stem the tide of this evil, let it be fairly seen that there is a legitimate demand for domestic remedies, to be used without the advice of physicians. Some medicines people ought to have in their houses. Still others people will obtain for disorders as they arise, and take them on their own responsibility. Undoubtedly they do this to an extent greater than is good for them—but that is no part of our present subject. There is little question but that people are disposed to take too much medicine, and physicians are inclined to give too much medicine. Physicians are learning to treat diseases with less and less medicine, and learn the lesson a good deal faster than the people learn it. The people must have time to be taught the limitations of specifics, and, therefore, let the people be well provided with standard remedies, just so far as they wish to use them. The United States Pharmacopœia has, from time to time, added preparations to supply the call for household medicines. There are many such, for various uses, in every drug-store. Let physicians of all sorts contribute them. But let it be indispensable that every article is labelled with its distinctive name. If it is a preparation not having an acknowledged name, let its formula of constituents be put on the package. The names should be in the best authorized terms, with popular synonyms when these will be sooner understood. The simple scientific name, in English form, is the best term to use. If the elderly people understand a certain substance best under the name of "nitre" or "saltpeter," the rising generation will know it better as "nitrate of potassium." For plants, the Latin names, in language of botany, are of first importance, but popular synonyms can be added. However, one who cannot understand any botanical, or scientific, or Latin name, has but to consult a dictionary or ask interpretation of the nearest school teacher or of the druggist. Any term becomes popular if used. Only in every article that anybody is to buy and use as a medicine if it be a preparation or mixture not of official composition, let its constituents and their proportional quantities be given, fairly and squarely. Let it come to be known that people will not buy things to take unless their contents are defined.

We would like to go a step further; we would at least discourage, if not now utterly discountenance the putting of the names of any diseases on any packages of medicine. Is it an objection that many people would not know, by the medicinal name, what disease the article was good to cure? Then by whom are they to be informed? Who is to assure the purchaser that the contents of the package will be useful for the infirmity? Shall it be any man who gets advertisements put on the fences? Indeed, general statements of whatever authority still leave the question to be decided by the patient and his friends. If he is to get advice, he ought to get the best. And it would be hard to obtain any credible medical authority to write down what diseases an article of medicine would be invariably good for. Still, if any honest persons can be induced to specify some names of diseases, to be indicated in a secondary way, on certain packages of medicine, let so much be granted in compromise, but it must be insisted upon that the medicinal name be placed the first.

And now, if it be in the main quite true that the use of nostrums is a source of positive injury to the public health, and a vitiating and wasteful absurdity, how are the people to be helped to get rid of the burden? Accepting the diagnosis, what should be the treatment?

Well, in the *first* place, begin the work of common sense in the public schools. Teach physiology, the

structure of the vital organism and the cause and effect of health and disease; teach the rudiments of chemistry and botany, if you will, but let the next generation know that it is the body and not the disease that is to be treated, and that universal panaceas are relicts of superstition. Cultivate a stalwart physical independence and a scrupulous prudence in the treatment of bodily infirmities. Security from charlatanism is dependent upon the intelligence of the people. In view of the indiscretion of this generation, it seems to be high time to look to the training of the next. This is the surest measure, ay, and the quickest, that can be adopted.

In the *second* place, let the actual composition of nostrums, as found by analysis, be more fully published among the people. Enough of the marvellous mixtures have been and are being analyzed to more than establish the prevailing imposture and absurdity of the entire class. The results ought to be spread before the people. A few years ago, a prominent pharmacist of New York began the publication of a health almanac, chiefly devoted to the revelation of the contents of current nostrums, and the undertaking ought to have been supported. In the German language, there are, among other sources of information, two compact dictionaries* of analyses of modern nostrums, including the chief ones made in this country—those sold abroad. Analysts report upon nostrums, at the cost of no little labor and time, and more reports should be made. Ask your druggist to make analyses of such as are finding the most patronage. A good many pharmacists, at present, are competent to make chemical analyses, inorganic and organic, with microscopic examinations, and all the pharmacists of the future should possess this qualification. No profession of men receives greater detriment from the nostrum trade than the dispensing druggists. The most of them consent to sell these things, as they do all medicinal appliances called for by anybody. If they did not keep them for sale, their customers would think their assortment very incomplete. In the larger cities, a few pharmacists keep no nostrums, and these are encouraged, or ought to be, by a better support from the people and the physicians. But the patent-medicine proprietors, to whom the profits chiefly go, will find their own ways to put their wares in reach of the people. All the journals and other established organs, both of pharmacy and of medicine, totally repudiate secret remedies, but so long as the people are in the condition to be duped, nostrum venders will fatten on the opportunity.

In the *third* place, it would be altogether an equitable measure to enact a law requiring all articles of medicine to be marked with their distinctive and established names, and all preparations for medicinal use to bear a statement of all their constituents in terms of the quantity of each. Let secret remedies be contraband of trade. Leaving every man to buy what he will, and use what he will, on his own responsibility, whether he knows anything about it or not, let the law interpose to prevent fraud. It is contrary to the spirit of the common law to admit the sale of a chance, or of an article represented to be something other than it is, or of uncertain weights and measures. To make regulations to stop an extensive class of deceptions is certainly within the scope of legal enactments. Such a law ought to commend itself to the world of trade as a measure to promote fair dealing. The nostrum-maker could not plead that he suffers a loss of value from publication of his secret, for the law grants no monopoly in compositions of matter unless they are under patent, and a patent gives no assurance of secrecy.

Such a law would be just, but would be useful no further than sustained by the information and judgment of the people. The fully awakened intelligence of the public in this country furnishes a support for sanitary regulations better than that of the more arbitrary powers of European governments. With a sufficient popular basis of well-apprised common sense, a good sanitary law, more comprehensive than individual action, brings conclusive results. And indeed, with law or without it, the baneful body of the nostrum business, already swollen near to the period of collapse, may be safely trusted to fail altogether in the robust atmosphere of an enlightened people.

* Wittstein's Geheimmittel-Lehre, Nördlingen, 1876. Hahn's Geheimmittel, Berlin, 1876.

School of Pharmacy of the University of Michigan.—A correspondent in Ann Arbor has kindly furnished us with a list of the questions employed at the recent examination, which we publish, not only as an evidence of the nature of the qualifications required in that school and of the character of the instruction given, but also as a suggestion to students of pharmacy elsewhere as to how they may profitably direct their studies during leisure hours.

SENIOR.

Micro-botany.

1. What do you understand by a ¼ inch objective?
2. Name the good qualities of an objective.
3. Give the construction of a common objective.
4. Give the structure in a drawing of Calisaya cinchona.
5. Describe the microscopic appearance of ipecac.
6. Make a drawing of cross-section of quassia and name the parts.
7. Make a drawing of cross-section of eucalyptus leaf.
8. Give the microscopical distinctions between cinnamon and cassia.
9. Make a drawing of black pepper and name the coats.
10. Draw and name the coats of mustard.
11. Give the distinctions of black pepper, mustard and coffee.
12. Make a drawing of wheat starch and give the size.
13. " " " oat " " "
14. " " " buckwheat starch " "
15. " " " bean starch " "
16. Give the difference between a closed and a vascular bundle.

Also to hand in (during the term of study) 60 drawings of microscopical sections of different plants, with written description of each.

Toxicology.

1. Define a poison.
2. What will effect the absorption of a poison?
3. What will modify the action of a poison?
4. What are the reasons for a failure to detect a poison?
5. Arsenic: give the symptoms of poisoning, period when fatal, fatal quantity, medicinal quantity, treatment, chemical analysis, distinction from antimony and tin.
6. Give the fatal quantity of strychnia, treatment and chemical analysis.
7. Give the treatment in poisoning by oxalic acid.
8. What is a poisonous dose of corrosive sublimate, symptoms and treatment?

Organic Chemistry.

1. Give the serial formulæ and names of the chief sources of the hydrocarbons.
2. The per cent of alcohol, U. S. P. and Br. Proof Spts. in average beverages. Spts., wines, and malt liquors.
3. A test for the strength of U. S. P. stronger ether and spts. nitr. ether.
4. The equations and conditions for the production of valerianic acid, also of acetic acid.
5. The method and equation for the manufacture of ether.
6. What is the structure of glycerin, how derived from the hydrocarbons; with what incidental impurities liable to be contaminated?
7. Analytical distinction of citric and tartaric acids.
8. Equations for fermentation as follows: (*a.*) Alcoholic; (*b.*) Lactous; (*c.*) Saccharous of starch by diastase; (*d.*) Conversion of cane sugar into glucose.
9. Equation for amygdalous fermentation.
10. A classified list of the chief coal-tar products in the homologous series, benzine, phenol, etc.
11. Constituents of creasote, its analytical distinction from carbolic acid.
12. Benzoic acid, its sources in manufacture, its tests of identity.

13. The equation for the manufacture of salicylic acid, its solubilities and tests of identity.
14. The chemical classification of the vol. oils.
15. Chemical structure of the tannins, equation for the formation of gallic acid.
16. Analytical distinctions between gallic and tannic acids.
17. A graphic formula for phenyl-di-amylamine.
18. Tests for purity of quinine sulphate and quinidine sulphate.
19. Caffeine: chemical structure and relation, tests of identity, sources and percentages.
20. Test methods and adopted limits in the chemical examination of milk.

Inorganic Pharmacy.

1. Describe the sources from which nitric acid and nitrates are derived.
2. Give in outline the manufacture of "soda" and bleaching powder.
3. Give the U. S. P. forms of free Cl, the preparations, composition, and limits of strength of each.
4. Give the natural sources and incidental impurities of iodides and bromides.
5. The sources of sulphur, outline of manufacture of sulphuric acid, what acids are liable to be contaminated in the manufacture of arsenical sulphuric acid.
6. Give the different modes of the preparation of dilute phosphoric acid, and the impurities liable to be contained in each.
7. The preparation of water of ammonia sp. gr. and per cent of each U. S. P. grade.
8 Detail your preparation of solution of citrate of magnesia.
9. The preparation, chemical composition, and synonyms of solution of subsulphate of iron.
10. The preparation and character of the tincture of chloride of iron.
11. The preparation of citrate of iron and quinine.
12. In what scale iron preparations does ammonia enter as a base, and what part does it serve?
13. Give the preparation of pyrophosphate of iron.
14. Give the preparation of sub-acetate of lead.
15. The preparation of mild chloride of mercury by the wet way.

Materia Medica.

1. Mention the principal preparations of opium, and give the strength and dose of each. The dose in all cases to be given in both the metric and common system.
2. Describe the poisonous action of digitalis, name the chief antidotes, and what are the principal indications for its use.
3. Nux vomica, its therapeutic and poisonous action, officinal preparations and their doses.
4. Describe the treatment for arsenic poisoning, and give the doses of its officinal preparations.
5. The officinal preparations of lead, their strengths and doses, give the treatment for lead poisoning, acute and chronic.
6. What are the chief physiological and therapeutical actions of belladonna? What are its effects when taken in poisonous doses?
7. Correct the following prescriptions, give your reasons for making the corrections and change the second to apothecary measure.

℞ Potassii iodidi,
" chloratis..... āā 11.70 grammes.
Aceti scillæ..... 32.00 "
Aquæ..... 128.00 "
M. Sig. Take a teaspoonful three times a day after meals.

℞ Potassii iodidi..... 3.90 grammes.
Tincturæ belladonnæ..... 7.80 "
Liquoris potassii arsenitis.... 6.60 "
Spts. ether. comp..... 40.50 "
Elixir simplicis..... 120.00 "
Aquæ cinnamomi ..... 180.00 "
M. Sig. Tablespoonful after each meal.

Urine Analysis.

1. Give the normal constituents of urine.
2. How may a specimen of urine be abnormal?
3. Describe urea. Its composition, chemistry, decomposition, amount, and how determined.
4. Given a specimen of diabetic urine. Describe its physical and chemical properties.
5. May the copper reaction for sugar be produced by any other substance? if so, by what? and why?
6. What will produce the copper reaction for sugar, and why?

Pharmacology.

To be able to recognize and describe all of the crude drugs of the dispensatory.

Crystallography.

To be able to recognize any crystal, perfect or imperfect, compound or simple, in any of the six systems, and to answer any questions regarding them.

JUNIOR.

Qualitative Chemistry.

1. Give the analytical equations for arsenic, bismuth, aluminium, chromium, and ferri-compounds.
2. Give the by-products in the analytical equations for manganese, zinc, antimony, and ferrous compounds.
3. Write out the complete analysis for silver, with the analytical equations.
4. What do oxalic acid and sulphurous di-oxide precipitate?
5. Write out the complete analysis of oxalic and sulphurous acids, with the analytical equations.
6. Give the solubilities of sulphates, sulphites, sulphides, iodides, bromides, chlorides, oxalates, and hydrates.

Balance the following equations:

1. $Pb_3O_4 + HNO_3 =$
2. $Mn(OH)_2 + Pb_3O_4 + HNO_3 =$
3. $Cr_2(SO_4)_3 + (NH_4)_2S + H_2O =$
4. $BiCl_3 + SnCl_2 + KOH =$
5. $Fe_2Cl_6 + K_4FeCy_6 =$
6. $Cr_2Cl_6 + K_2S + H_2O =$
7. $FeSO_4 + K_3FeCy_6 =$
8. $Al_2(SO_4)_3 + Na_2CO_3 + H_2O =$
9. $Al_2(SO_4)_3 + BaCl_2 =$
10. $AgNO_3 + Fe_2Cl_6 =$
11. $Cr_2(SO_4)_3 + K_2CO_3 + H_2O =$
12. $CuSO_4 + BaI_2 =$
13. $Hg_2Cl_2 + NH_4OH =$
14. $CuSO_4 + Al_2I_6 =$
15. $Hg(NO_3)_2 + NH_4OH =$
16. $Fe_2Cl_6 + HI =$
17. $(NH_4)_2S + HCl =$
18. $FeCl_6 + (NH_4)_2S =$
19. $(NH_4)_2S_2 + HCl =$
20. $Hg_2Cl_2 + NH_4OH =$
21. $FeSO_4 + (NH_4)_2S_2 =$
22. $ZnSO_4 + KOH =$
23. $Cr_2Cl_6 + (NH_4)_2CO_3 + H_2O =$
24. $Hg_2(NO_3)_2 + NH_4OH =$
25. $SnCl_2 + KOH =$
26. $Fe_2Cl_6 + K_2CO_3 + H_2O =$
27. $Fe_2Cl_6 + KI =$
28. $FeSO_4 + Cl =$
29. $MnO_2 + HCl =$
30. $KI + Cl =$

Write out the equations for the following problems:

1. To make NH_4Cl from $(NH_4)_2SO_4$ and HCl.
2. To make $BaCO_3$ from $BaCl_2$ and CO_2.
3. To make Fe_2Cl_6 from $FeSO_4$ and HCl.
4. To make Ag_2CO_3 from Ag and CO_2.
5. To make Bi_2S_3 from $BiCl_3$ and FeS.

Questions on oxidation and reduction.

1. What will oxidize HI, and give the products formed?
2. What will change Fe^{III} to Fe^{II} in acid mixtures?
3. What will change Fe^{II} to Fe^{III} in acid mixtures?

4. What will change Pb^{II} to Pb^{IV} in alkaline mixtures?
5. What will change Cr^{II} to Cr^{VI} in alkaline mixtures?
6. What will change Mn^{II} to Mn^{IV} in alkaline mixtures?
7. What will change Ag^{I} to Ag (metallic)?
8. What will change Hg^{I} to Hg^{II}?
9. What will change Sn^{II} to Sn^{IV}?
10. What will change As^{III} to As^{V}?
11. What will change Sb^{III} to Sb^{V}?
12. What will change Cu^{II} to Cu^{I}?

Also an oral examination on oxidation and reduction to be able to give the action of all the acids, on all the acids, also on all the metallic forms.

Balance the following equations:

1. $Ba(MnO_4)_2 + HCl =$
2. $PbO_2 + ZnC_2O_4 + HNO_3$ (sp. gr. 1.20) $=$
3. $Mn(NO_3)_2 + Pb_3O_4 + HNO_3 =$
4. $Hg_6(PO_4)_2 + KOH + Cl =$
5. $H_3AsO_3 + HClO_3 =$
6. $Pb(ClO_3)_2 + Zn + H_2SO_4 =$
7. $Fe_2(SO_4)_3 + KOH + I =$
8. $MnSO_3 + Cl + H_2O =$
9. $KOH + I =$
10. $PbO_2 + H_2SO_3 =$
11. $MnI_2 + KOH + Cl =$
12. $MnI_2 + KOH + Br =$
13. $MnSO_4 + Pb_3O_4 + HNO_3 =$
14. $MnC_2O_4 + Pb_3O_4 + HNO_3 =$
15. $Pb(MnO_4)_2 + HBr =$
16. $Pb(MnO_4)_2 + KOH + Cl =$
17. $MnI_2 + KOH + I =$
18. $FeSO_3 + Cl + H_2O =$
19. $KOH + Br =$
20. $Pb_3O_4 + H_3PO_4 =$
21. $FeSO_3 + KOH + Cl =$
22. $Fe_3I_8 + KOH + Cl =$
23. $Fe_2(NO_3)_6 + KOH + Al + H_2O =$
24. $Pb(MnO_4)_2 + KOH + Al =$
25. $K_2FeO_4 + HI =$
26. $K_2FeO_4 + HCl =$
27. $N_2H_6CuO(NH_4)_2SO_4 + KI + H_2SO_4 =$
28. $N_2H_6CuO(NH_4)_2SO_4 + KI + K_2SO_3 + H_2SO_4 =$
29. $Fe_2(AsO_4)_2 + KOH + Al =$
30. $PbSO_3 + Al + HCl =$

Write out the equations for the following problems.

1. To make $HgBr_2$ from Hg and KBr.
2. To make Fe_2Cl_6 from FeS and Al_2Cl_6.
3. To make NH_4Cl from $(NH_4)_2SO_4$ and $KClO_3$.
4. To make $(NH_4)_2S$ from HNO_3 and H_2SO_3.
5. To make K_2SO_4 from KOH and Na_2SO_4.
6. To make $SnCl_2$ from SnS_2 and NaCl.
7. To make Fe_2Cl_2 from $FeSO_4$ and $HgCl_2$.
8. To make $(NH_4)_2S$ from NH_4Cl and H_2SO_4.
9. To make K_3AsO_4 from AsH_3 and KOH.
10. To make PbI_2 from $PbSO_4$ and KIO_3.
11. To make $HgBr_2$ from HgS and AgBr.
12. To make $(NH_4)_2S$ from $(NH_4)_3PO_4$ and K_2SO_3.
13. To make $(NH_4)_2SO_4$ from $Ba(NO_3)_2$ and HgS.
14. To make NaCl from KCl and Na_2SO_4.
15. To make Hg_2O from HgO.
16. To make PbS from $PbSO_3$.
17. To make P from K_3PO_4.
18. To make $PbSO_4$ from Pb and KCyS.
19. To make $Ba(IO_3)_2$ from $BaSO_4$ and KI.
20. To make Cr_2Cl_6 from $K_2Cr_2O_7$ and AgCl.

Pharmacy.

1. Define each of the three molecular forces.
2. What are the three alphabetical lists of the U. S. P. and in what alphabetical order would you find chlorine water?
3. Define specific gravity and describe the use of the specific gravity bottle; also ordinary hydrometers.
4. Give in detail the U. S. P. general process for fluid extracts.
5. Define an infusion, decoction, extract, tincture, spirit, water, alcoholic solution, volatile oil.
6. Describe dialysis; its conditions, results, uses.
7. What is calorific power? Give that of C and H. What is meant by calorific intensity?
8. What is latent heat? State the different forms and the amount of it for water as a substance.
9. What is specific heat?
10. What conditions govern or vary the boiling point?
11. How does evaporation occur below the boiling point?
12. What are the means of obtaining a partial vacuum?

Problems.

1. Having 1 fl. oz. (wine measure) of H_2SO_4 U. S. P. standard, how many fl. oz. (wine measure) of water of ammonia U. S. P. will be required to neutralize the acid?
2. To fully precipitate a solution of 100 grs. of $AgNO_3$ (crystals), how many cc. of HCl U. S. P. standard would be required?
3. To neutralize 1 pint of HNO_3 (wine measure) U. S. P. standard, how many lbs. (av. wt.) of crystallized $Na_2CO_3 10H_2O$ will be required?

Systematic Botany.

Questions to be asked on 100 plants that have been previously analyzed, and a thorough description written out.

1. Habitat.
2. Natural order.
3. Character of order.
4. Describe the leaf.
5. Character and kind of inflorescence.
6. Plan of flower.
7. Describe the parts of the flower in detail and draw diagram.
8. Describe fruit and seed.

Quantitative Analysis.

1. How is the sensibility of a balance tested?
2. What is a meter, liter, and a gram?
3. What is sp. gr. and what used for?
4. How is Cu precipitated as Cu_2S?
5. How is Cl in chlorides estimated gravimetrically?
6. What is an empirical solution, and how prepared?
7. What is a centi-normal solution, and how prepared?
8. What is a normal factor?
9. To what class of reagents does bichromate ($K_2Cr_2O_7$) belong? Write the equation for titrating $FeSO_4$ with it.
10. What class of reagents does $Na_2S_2O_3$ belong to?
11. Give methods of estimating Fe^{III} by an N^{10} solution of $Na_2S_2O_3$ and give reactions which take place in the process.
12. How is As_2O_3 estimated volumetrically?
    " " Cl " "
    " " " in chlorides "
13. Give method for separating Cu from As.

Chemical Physics.

1. Define the term potential, and give Ill. of it.
2. Describe the action of an electrified body on an insulated conductor, also on an un-insulated conductor.
3. Describe Bunsen's battery, draw a diagram showing the fall of potential for 5 cells in series.
4. State and discuss Ohm's law for 1 and n cells.
5. Describe the methods of producing induced currents.
6. State the difference between sp. gr. of a gas, its a. w., its m. w., and its composition.
7. Given the wt. of Fe_2O_3 before and after burning, how would you find the a. w. of the Fe, O being 16?
8. Describe ammonium, ammonia and ammonic hydrate, and write an equation with H_2SO_4 and NH_4OH.
9. What two oxides does S form? and describe them.
10. Give the fourth group of metals and describe them.

Pharmacy Preparations.

1. How are the pills of iodide of iron prepared?
2. How is the ointment of iodide of mercury prepared?
3. How is lead plaster prepared, and of what does it consist chemically?
4. What are the constituents of compound mixture of licorice, also comp. tr. of squills.

5. How is the deodorized tr. of opium prepared?

6. How is HNO_3 prepared? give equation, also sp. gr. of U. S. P. acid.

7. To prepare 1 pt. of 2% HCy. (sp. gr. .997), indicate by proportions the amounts of AgCy and HCl (sp. gr. 1.16 required. (HCl in vol.)

8. How is citrate of iron and quinia prepared? (explain in detail.)

9. How is tr. of chloride of iron prepared? give the equation.

10. How is calomel prepared? give equation.

11. From an alloy of Ag. Cu. Bi. and Pb. tell how to prepare chem. pure nitrate of Ag.

12. How is precipitated S. prepared?

13. How is resin of podophyllum prepared, and how does the process differ from the other U. S. P. resins?

14. How is iodoform prepared?

15. How is sulpho-vinate of sodium prepared? Give the equation.

Is Opium-Eating Injurious?—MR. D. H. CULLIMORE, writing to the *Br. Med. Jour.* of June 25th, in reply to the query of Dr. Murrell, "is opium-eating and opium-smoking necessarily and universally pernicious?" says: "In one respect it is more dangerous than either tobacco or alcohol, and that is, in the fact that its use is more liable to degenerate into abuse than either of these. In moderation, I have been told, many people look upon their daily supply as a fillip—a sherry-and-bitters, in fact; and in numerous instances it has been found, after a lifetime, as little injurious. On the other hand, when the mind has become unbalanced from pecuniary loss or domestic calamities, the usual allowance is exceeded, and what was originally a moderate dose would eventually be looked upon as a homœopathic or even infinitesimal one. Moderation even here is often regulated by the purchasing power of the individual; and this, as the drug is expensive, will ever remain a barrier, not only against its general abuse, but even against its universal use amongst the immense population of China. Thus in Singapore, where the wages of the Chinese are good, the consumption of opium is at the rate of 330 grains a year for each person. In Java, where the Chinese community is a small one and the wages comparatively low, the consumption does not exceed forty grains; and in China itself the rate of consumption is 140 grains, or adult doses, which would not give half a grain a day. But, as I said before, it is inaccessible to the mass of people, owing to their poverty. In many instances with which I was familiar, it did not produce constipation or loss of appetite, even when attended with listlessness and voluptuous reveries. No such effect followed as the result of separate doses; but, as a rule, its continued use will eventually end in loss of appetite, constipation, mental decay, and sexual impotency. The classic description of what I should call the confirmed rather than the habitual opium-eater, quoted by Dr. Murrell, though exaggerated and highly colored, as such descriptions are likely to be, is in many particulars correct. For instance, a casual observer can "recognize at a glance," among any collection of well-to-do Chinamen assembled round the joss-house or other resort, a few possessing most distinctive characters of the confirmed debauchee. I have never seen a death the immediate and exciting cause of which was opium-eating, but can remember a few the result of an active and excessive debauch with this drug, in conjunction with *bang*, an extract of Indian hemp."

Citrine Ointment with Vaseline.—MR. P. SQUIRE writes to the *Pharm. Journ.* that he has made citrine ointment with vaseline for 4 or 5 years without a failure. The mercury and acid are put into a wide-mouth bottle or flask, and whilst the action is going on, the vaseline is heated in a water-bath to 180° F. If the mercury is not completely dissolved, the flask is held in the water-bath until solution is complete; it is then poured into the vaseline and the whole stirred until cold. One part of this ointment with three of vaseline has been used by the London oculists and highly approved by them.

Analysis of the Seeds of Xanthium strumarium.*—(ARTHUR ZANDER.) Peasants in the neighborhood of Ssatarow had collected the seeds of the "broad-leaved burdock," and had expressed the oil, which was sold for culinary purposes. The consequence was that many adult persons became seriously ill, and a number of children died, under symptoms of narcotic poisoning. The author found in the seeds, besides ordinary constituents, a glucoside, free from nitrogen, which he termed *xanthostrumarin*, soluble in water, common and absolute alcohol, wood-spirit, amylic alcohol, ether and chloroform, but insoluble in petroleum-benzin. Alkalies impart to even very dilute, colorless solutions a yellow, and to strong solutions a dark brownish-yellow color.

Physiological experiments, made with the seeds on animals, proved them to be entirely inert. The author took a quantity of the seeds himself and obtained the same negative result. Still, the author points out, that he had only *dried* seeds at his disposal, and that *fresh* seeds may possibly still contain a poisonous body, which is destroyed on long exposure to air or by heat.

Cliché.—Coat a smooth surface of glass or metal with a smooth, thin layer of gelatin and let it dry. Then write or draw upon it with an ink containing chrome-alum, allow it to dry exposed to light, and immerse the plate in water. Those parts of the surface which have not been written upon, will swell up and form a relief plate, while those parts which have been written upon with the chrome-ink have become insoluble in water after exposure to light. The relief may be transferred to plaster of Paris and from this may be made a plate in type-metal.—After *Zeitschr. d. Allg. Oest. Ap. Ver.*

The Palm Oil Trade.—According to an official report on the trade of Liberia, the palm oil business is carried on there in a somewhat peculiar manner. It appears that recently this business has been a source of annoyance to the trading classes of Liberia. The price of oil has materially fallen in consequence of the general commercial depression in Europe; and to induce the native population, upon whom the traders depend for their supplies of oil, to bring their oil to the factories and sell it at reduced price, is a very difficult matter. They know nothing comparatively of the European markets, and care nothing about the price the trader gets for his oil when casked and shipped. At Grand Bassa troubles occurred between the factory men and the natives; and on the refusal of the latter to sell oil at the traders' prices, in not a few instances the oil was taken from the natives by force, and they were driven off, and not infrequently beaten. A convention of traders was called at Bassa to settle the price of oil, but those who procure the oil were not informed of the conference, nor invited to attend. The oil, we read, is paid for ordinarily in goods, and when 40 cents per gallon were paid, the goods amounted to 20 per cent only in honest valuation. The native people have not a very exalted opinion of the honorable dealing of the mercantile classes with whom they have business relations. The kernels of the palm constitute quite as important an article of trade as the oil. It is stated that sufficient soap might be made from the oil of the palm to form a permanent and fairly profitable industry. The Mandingoes sell a soap of their own manufacture, which is excellent for ordinary purposes, and is a very good article for the bath.—*Chem. and Drugg.*

Dispensing Solid Extracts.—Dr. H. McD. Gamble, of Columbia, Mo., suggests that the preservation and dispensing of soft extracts would be greatly facilitated by keeping them in the compressible metal tubes such as are used for artist's colors and for dispensing ointments.—*Coll. and Clin. Record.*

* *Chemisches über die Samen von Xanthium strumarium.* Inaugural Diss. v. Arthur Zander, 8vo, Dorpat, 1881. Received fr. Prof. G. Dragendorff.

Testing the Purity of Balsam of Peru.—(A. DOESCHER.) The author contributes a method calculated to detect an admixture of 10% of storax or rosin in balsam of Peru, which is based on certain reactions of the pure balsam.

1. On digesting 2 gm. of pure balsam of Peru in a moderately warm place, with 10 gm. of petroleum ether, and allowing 30 drops of the clear decanted liquid to evaporate on a watch-glass, there will remain an almost colorless oily residue, which is colored yellow by the addition of officinal crude nitric acid and gentle warming over the alcohol flame.

2. On treating a mixture of 9 parts of balsam of Peru and 1 part of storax in the same manner, there is left a residue which is colored greenish-blue after addition of nitric acid and warming. The greenish-blue color afterwards passes to greenish-yellow. The yellow reaction of the pure balsam is usually recognizable at the same time.

3. If a mixture of 9 p. of pure balsam and 1 p. of rosin are treated similarly, the color produced will be a still more handsome greenish-blue than in 2. After a while, this color also passes into greenish-yellow.

4. Having found that a sample of balsam gives this greenish-blue (or grayish-blue) reaction, the next step is to apply a test—previously recommended by Grote—which consists in strongly agitating 3 drops of the balsam, in a test-tube, with 2 cc. of officinal water of ammonia, when two alternatives may arise:

a) An emulsion, with strong lasting foam, results, which, on longer standing becomes viscid or gelatinous.

In this case the balsam was sophisticated with rosin.

b) An emulsion, with faint evanescent foam, results, which does not become viscid or gelatinous.—*Pharm. Zeitung*, No. 32.

Grote's reaction depends upon the fact that, in general, balsam of Peru is less easily decomposed by alkalies than other substances likely used in its sophistication. He recommends to shake the balsam with ammonia, in the above-mentioned proportion, which corresponds to about 2 parts of balsam and 17 parts of water of ammonia by weight. The free acid goes into solution, and of the other constituents only a small quantity is emulsified, while the largest portion remains unaltered. If the balsam was pure, a turbid liquid may be poured off from it after 24 hours, and the remainder is semifluid or at least very soft. FLUECKIGER, who has published a paper on this subject in a preceding number of the same journal, finds that this reaction is the same even if the proportion of balsam to ammonia is increased to 2 parts of the former and 1 part of the latter. Balsam which contains rosin is readily detected by this process, but such additions as benzoin, storax, balsam of copaiva, and gurjun balsam cannot be detected by it, as Grote himself admitted. The same is the case with fatty oils.

Prof. Flückiger thinks that sophisticators will hardly use castor oil any longer, as it can be detected too readily. In the first place, its spec. gr. is 0.96; hence if added in moderate proportion, it would depress the spec. gr. of the balsam too much. On shaking balsam containing a fatty oil with carbon disulphide the latter takes the fatty oil present, together with the cinnamein. On evaporating and saponifying the residue with alcoholic soda, then passing carbonic acid gas through the liquid to remove the excess of soda as carbonate, the filtrate will contain sodium cinnamate and the sodium salts of the fatty acids, which latter may be separated by boiling water from the acidulated solution, and thereby separated from cinnamic or benzoic acids.

To detect the presence of other substances, Prof. Flückiger proposes another method, likewise based upon the fact that balsam of Peru is not readily decomposed. Either by boiling with milk of lime, or by treating it with dry slaked lime (2 parts of balsam to 1 of lime), the cinnamic acid only is withdrawn, and the remainder of the mixture remains soft, or smeary; or can at least be kneaded; or, if slightly brittle, it can at least be readily disintegrated. But a balsam which contains any of the usual adulterants yields a *very hard mass*, no longer kneadable.

Based upon these facts, Prof. Flückiger proposes to demand *that* 10 *drops of balsam of Peru mixed with* 0.4 *gm. of slaked lime should yield a mass which remains* soft. Dr. Grote also agrees with Prof. Flückiger regarding this reaction. It remains now to be seen whether the above results respecting tests of purity of true balsam and tests of adulterations will be found to prove correct when applied to the various commercial samples of pure and spurious balsam. If they are found correct, the examination of balsam of Peru might be restricted to the following points:

1. Balsam of Peru must have a spec. grav. between 1.140 and 1.145 at 15° C. More ample experience is required to ascertain whether it would not be more correct to make the limits 1.138 and 1.147. Former data as to spec. grav., going as high as 1.150 and 1.160 are too high. Possibly the balsam had really a higher spec. grav. in former years.

2. 10 drops of balsam, with 0.4 gm. of slaked lime, yield a mass which remains soft.

3. Shaken with three times its weight of carbon disulphide, the balsam is decomposed into dark-brown resin firmly adhering to the glass, and in cinnamein which imparts but a slight color to the disulphide.

The second (2) reaction does not apply, in case fatty oil is present. On warming the lime-mixture, however, the odor of fat is clearly perceptible, unless the quantity of the fatty oil was very small. On ignition, the peculiar products of the decomposition of castor oil recognizable by their odor are produced.—*Pharm. Zeitung*. No. 30.

Prescribing Extraordinary.—WALTER C. STILLWELL, PH.G., M.D., in an article published in the *Medical Times*, for May 21st, on "Overdosing, and Giving Disagreeable Medicines Unnecessarily," tells, among other things, how a prescription was presented at a drug-store to be compounded, not long ago, containing a number of ingredients, among them a preparation of iron and also a vegetable astringent. It was compounded and delivered to the patient; he immediately returned it to the store, with the remark that "he did not want ink." The druggist referred him to the physician who prescribed it; he told the patient that "if he prescribed ink it was his place to take ink;" and he did, and when he had any writing to do he would use his medicine as a writing-fluid, and when his inkstand wanted replenishing he would always get his prescription renewed.

Blue Crystals Formed in Solution of Salicylate of Sodium.—(CH. MENIÈRE.) It sometimes happens that a few hours after having combined salicylate of sodium in a mixture, numerous blue crystals form at the bottom of the vial. This he ascribes to the probable presence, in the commercial salt, of erythrophenate of sodium, of which he thinks that small quantities are formed during the process of making the salicylic acid.—*Rép. de Pharm.*, 1881, 156.

A Conundrum.—DR. R. J. NUNN, of Savannah, presented a paper on the "Treatment of Diphtheria," at the recent meeting of the American Medical Association, in the course of which the writer remarked that after treating six hundred or seven hundred cases his faith in the efficacy of drugs is very feeble, and yet he offered the following formula as one that he had used; a little of it being put on the back of the tongue every hour or two:

Sulphur sublim	.....	gr. viij.
Acid. boracic	.....	" iv.
" benzoic	.....	" i.
" salicylic	.....	" i.
" tannic	.....	" i.
" tartaric	.....	" iv.
Sodii chlorid	.....	" iv.
Resorcin	.....	" i. M.

Query. What is the chemical nature and therapeutic action of this compound, and what might reasonably be expected to follow its ingestion at short intervals by a person in average good health?

Amyl Nitrite.—DR. C. V. CHAPIN reports in a recent work on "The Sympathetic Nerve," an interesting series of experiments with this agent. It having been suggested that if sleep is dependent on cerebral anæmia, amyl nitite, which promotes the circulation in the brain, should awaken sleeping persons. Dr. Chapin, with the aid of a nurse, carefully applied a few drops of the drug to the nostrils of ten or twelve patients who were sound asleep, and in every case they awoke in less than one, or, at most, in two minutes. This was repeated on several evenings, and on different patients, but with uniform results. Lest it might be the odor of the drug or the irritation of the fifth nerve, or his presence near the bed, he tried on other occasions bisulphide of carbon, and oil of peppermint, but succeeded in awakening not a third of those on whom they were employed.

Action of Chloride of Ammonium upon Glycerin.—A. ETARD has shown that, by treating glycerin with chloride of ammonium, at higher temperature, a new base is produced, which he has named *glycolin*, of the composition $C_6H_{10}N_2$. The hydrochlorate forms warty groups of needles, easily soluble in water and alcohol.—*Compt. rend.*, 92, 705.

Conversion of Morphine Into Codeine.—(M. E. GRIMAUX.) Matthiessen and Wright have previously found that both morphine and codeine, when treated with hydrochloric acid, lose the elements of water and are converted into apomorphine. Codeine at the same time furnishes methyl chloride. But these chemists did not mention any facts which would show that they were aware of the possibility of the conversion of morphine into codeine. Mr. E. Grimaux, arguing from the properties and reactions of morphine that it approaches the phenols in character, assumed that morphine contained at least one phenol nucleus, and that codeine would then be the methylic ether of morphine, considered as phenol. To test this hypothesis, he heated morphine with alcoholic soda and iodide of methyl, whereby he obtained iodomethylate of codeine, about 85 per cent of the theoretical quantity. By further decomposition of this body he obtained free codeine, identical in every respect with the natural alkaloid. The final yield was 2 gms. of hydrochlorate of codeine from 20 gms. of morphine—a number of other products being obtained at the same time.

The author proposes to apply the name *codeines* as a generic term, to all compound ethers of morphine. The methylic ether of morphine he proposes to call *codomethyline*, or "*codeine*" par excellence; the ethylic ether of morphine would be *codethyline*, etc.—*Répert. de Pharm.*, 1881, 264.

Oolachan Oil.—Not long ago dugong oil was introduced as a rival to cod-liver oil in England (and also to a small extent in the U. S.), and now a new claimant has appeared under the name *oolachan oil*. At ordinary temperatures it appears to have a consistence between that of dugong and cod-liver oils, and a taste which is perhaps slightly more agreeable than either. The oolachan fish is about the size of a herring, and is met with on the coast of British Columbia, and Vancouver's Island. It is so full of oil as to be known as the "candle-fish;" for when dried it can be used as a torch.—*Pharm. Journ.*, Ap. 30th.

Prof. Th. Husemann remarks to this that, according to the investigations of Oswald Naumann, only the liver fats exhibit the peculiar favorable property of diffusion which forms the basis of the therapeutic effects of cod-liver oil. Hence it will hardly be advisable to at once supplant the latter by the new oil.—*Pharm. Zeit.*

Occurrence of Arsenic and Vanadium in Commercial Caustic Soda.—(ED. DONATH.) Since caustic soda is no longer exclusively made from crude soda and lime, but is also produced directly from "red liquor," the product is often contaminated with undue proportions of chlorides, sulphates, carbonates, even nitrites, and sometimes cyanogen compounds. The author has now also met with arsenic and vanadium in caustic soda (in sticks). The latter impurity may be disregarded, being rare and very minute; but the former is more serious. A sample of this caustic soda, dissolved in dilute sulphuric acid, and the solution tested directly in Marsh's apparatus, yielded a strong arsenical mirror. Assay by means of precipitation with hydrosulphuric acid, etc., yielded 0.16 per cent of arsenic acid. The same sample contained also 0.014 per cent of vanadic acid. The latter may be recognized by passing through a solution of the caustic soda a current of hydrosulphuric acid, when the liquid will finally assume an intense reddish-violet color. This is filtered and acidulated with dilute sulphuric acid, when a precipitate will be obtained which, after being washed, will produce with borax a yellow bead in the outer blow-pipe flame, and a green bead in the inner. On heating the precipitate in the air, a reddish-yellow mass is obtained which is soluble in ammonia with a yellow color. The latter solution slightly acidulated with hydrochloric acid yields a bluish-black precipitate with infusion of nutgall.—*Dingler's Pol. Jour.*, 240, 318.

Preservation of Green Sulphate of Iron.—In order to protect green sulphate of iron from oxidation it has been customary heretofore to direct that it be kept as much as possible from contact with atmospheric air, or in other words, that it should be kept in tighly closed vessels. This method is, however, condemned by E. Johanson, who has found that an air-tight inclosure rather promotes than hinders oxidation, and adduces the following explanation:

Ferrous salts act as ozonizers, which may be shown by filling a flask partly full of ferrous sulphate and fixing a strip of starch and iodide of potassium paper inside by means of the cork. This strip will soon acquire a blue color. This is owing to the development of ozone, while the flask is tightly closed, and the ozone oxidizes the iron. If the interior air is enabled to communicate by diffusion with the outer air—for instance, if the flask is merely closed with paper—the ozonizing action is almost entirely neutralized.—*Pharm. Zeitsch. f. Russl.*, 1880, 23.

Gynocardic Acid in the Treatment of Skin Diseases.—DR. WYNDHAM COTTLE (*Br. Med. Jour.*), after a successful experience with Chaulmoogra oil in eczema, lupus, etc., experimented with gynocardic acid, which he assumes to be its active principle. The following is his summary of its effects: When given in internally it appears to be assimilated and rarely produces nausea—differing in this respect from the oil. Improved nutrition commonly follows the use of either. It is especially beneficial in diseases depending on mal-nutrition. Rheumatism, gout, and some forms of syphilis have sometimes improved rapidly during the use of the oil. The acid, unlike the oil, can be used in the form of pills. About 3 grains of the acid may be given daily internally, and for external use 15 to 25 grains to the ounce of vaseline [or cosmoline, etc.] may be employed.

Aspidospermine has been reported to be insoluble in water. Dr. Eulenberg, of Greifswald, has recently denied this statement, and says that with the aid of 4 to 5 parts of nitric acid it is soluble in 50 parts of water In cold (absolute) alcohol, ether, and glycerin it is scarcely soluble. *Boiling* alcohol dissolves one part in ten. The acidified watery solution is somewhat reddened on long standing, but remains clear.

Elatina.—This name is applied to a substitute for tar-water, which is used in Italy for coughs and intestinal catarrh. Ciutlini gives the following formula:

Green pine cones	600 parts
Olibanum	8 "
Balsam of Tolu	5 "
Resin	4 "
Juniper berries	60 "

The ingredients are covered with a sufficient quantity of water, allowed to stand over night, and next morning 1,200 parts of liquid are distilled off over a moderate fire. The distillate is filtered and bottled. The dose is stated to be half a wineglassful 2 or 3 times a day.—*Pharm. Zeit.*

BIBLIOGRAPHY.

A TREATISE ON THE CONTINUED FEVERS. By JAMES C. WILSON, M.D., with an Introduction by J. M. Da Costa, M.D. New York: William Wood & Co., 1881, pp. 365.

A MEDICAL FORMULARY Based on the United States and British Pharmacopœias, together with numerous French, German, and Unofficinal Preparations. By LAWRENCE JOHNSON, A.M., M.D. New York: William Wood & Co., 1881, pp. 402, 8vo.

THE two works above mentioned belong to the current series of "Wood's Library of Standard Medical Authors." The first is made to embrace rather fuller data respecting the continued fevers than are to be found in text-books on general medicine, and at the same time it avoids the prolixity of some of the special treatises which are rather apt to confuse the general practitioner and obscure his judgment when he is obliged to consult them during the management of a case. Nothing is here needed in the way of indorsement of the qualification of the authors for such a task.

DR. JOHNSON'S work is well calculated to afford the practitioner and student a good knowledge of the formulas for compounding remedies in more or less general use, and which extended experience has proven to be serviceable. Each drug is mentioned in alphabetical order and briefly described. The approved mode adopted for its preparation is given when demanded. Following this come the notable preparations of the drug; those which are officinal being characterized by the type used in the title.

Altogether the work has been done in a very creditable manner, but we regret that in the transcription of British formulas the author has not taken the precaution to convert the avoirdupois weights there used, into the troy weights officinal in this country, since this is a source of many errors on the part of those who attempt to use British formulas on this side of the ocean. The same may be said with regard to the term "pint," which quantity is one-fifth larger in Great Britain than here. The author has carefully accredited the sources from whence his materials are derived—a feature not commonly met with in similar works.

Περὶ Χημικῆς Συνθέσεως, καὶ τῆς τεχνητῆς τῶν ἀλκαλοειδῶν παρασκευῆς, etc., etc. *Ὑπὸ Ἀναστασίου Κ. Δαμβέργη, Διδάκ. τ. φιλοσ.* 8vo. *Ἐν Ἀθήναις*: 1880.

ON CHEMICAL SYNTHESIS, AND ON THE ARTIFICIAL PRODUCTION OF ALKALOIDS, etc. By ANASTASIOS K. DAMBERGI, Phil. Dr. Athens, 1880.

A VERY good résumé of the history of chemical synthesis since the first discovery of artificial urea by Wöhler, down to the late researches of Ladenburg and others on the solanaceous alkaloids.

UNTERSUCHUNG DES BIERS AUF FREMDE BITTERSTOFFE. (Arbeiten aus dem pharmaceutischen Institut zu Dorpat.) Von Prof. Dr. G. Dragendorff.

CONTAINS an abstract of an improved systematic method of beer-analysis, which will shortly be published in a work treating on the adulteration of articles of food, etc.

REPORT OF ANALYTICAL AND OTHER WORK DONE ON SORGHUM AND CORNSTALKS BY THE CHEMICAL DIVISION OF THE DEPARTMENT OF AGRICULTURE, July to December, 1880, 8vo, Wash., 1881.

CONTAINS a valuable report of an immense number of analyses of sucrose, glucose, total juice, etc., of a large number of species of sorghum, with a view to enabling farmers to select the most prolific species for cultivation adapted to their soil. The Report may be had on application.

BEITRAEGE ZUR CHEMIE DER LAUBMOOSE. Inaug.-Dissert. von EDUARD TREFFNER. 8vo. Dorpat, 1881. (From Prof. Dr. George Dragendorff.)

UEBER DAS MILCHSÄURE-FERMENT und sein Verhalten gegen Antiseptica. Inaug.-Diss. von Hermann Meyer, 8vo. Dorpat, 1880. (From Prof. Dr. George Dragendorff.)

CONSTITUTION and By-Laws of the Alumni Association of the Louisville College of Pharmacy, 16mo. Louisv., 1880.

From Dr. Dioscoride Vitali of Piacenza: Sul Bicloridrato di Chinina per uso ipodermico, 8vo, Milano.—Sul Bicloridrato di Chinina. (Two other papers on same.) —Degli Acidi Biliari; della loro ricerca nelle urine biliose e della reazione del Pettenkofer, 8vo. Milano, 1880.—I Giurati nei reati di veneficio, 8vo. Piacenza, 1880.—Sugle Macchie sanguigne, 8vo (two papers).—Ricerco dell' acido picrico nella birra, 8vo.—Di una Reazione caratteristica degli alcoli, 8vo.—Sofisticazione del Magistero di Bismuto mediante il Fosfato di Calce, 8vo.—Le Carne Equini como alimento, 12mo. Piacenza, 1880. —Etude Toxicologique sur l'Atropine et sur la Daturine (Bruxelles).—Di alcune reazioni per la ricerca dell' alcol nei liquidi idralcolici, nel cloroforme, nell' etere e nelle essenze.—Sopra alcune reazioni cromatiche del molibdeno. I Cristalli di Emina ottenuti da un sangue putrefatto e di una data da oltre 15 secoli, 8vo.—Sopra un Caso strano d' Esplosione spontanea, 8vo.—Dell' Acido Salicilico e della Canfora monobromata, 8vo.—Sugli Alcaloidi delle Solanaceæ e sulla Sintesi dell' Acido Tropico, 8vo, 1881, (advance sheets.)

DEUTSCHE FLORA. PHARMACEUTISCH-MEDICINISCHE BOTANIK. Ein Grundriss der systematischen Botanik zum Selbststudium für Aerzte, Apotheker und Botaniker. Von H. Karsten, Dr. Phil. et Med., Prof. d. Bot. 8vo. Berlin: (J. M. Spaeth). Appears in parts. Price complete, about 20 *marks*.

PROF. KARSTEN, who is well known in botanical literature as an able observer and independent student of morphology, and whose previous works (among them chiefly the magnificent and costly Flora Columbiæ) have long ago established his reputation, now appears before the pharmaceutical and medical public with a "German Flora," which is not, however, confined to German plants, but which covers the whole extent of systematic botany, both cryptogamic and phanerogamic. While particular attention is paid to plants which are native in Germany, all others interesting from a pharmaceutical and medicina view are likewise treated of at their appropriate place. The work is illustrated with a large number of original woodcuts, giving the structural characteristics of prominent types of families.

The author employs a system of classification in many respects different from that of other botanists. So far as we have had occasion to examine the system, it appears to more closely define the established divisions. The angiospermous plants are arranged chiefly after Endlicher's system, except that the gamopetalæ are placed at the end.

NEW BOOKS.

Bartholow (Roberts, A.M., M.D., LL.D.). Medical Electricity; a Practical Treatise on the Applications of Electricity to Medicine and Surgery. 96 illustrations. 8vo cloth, 264 pp. 2.50

Elderhorst (W.). Manual of Qualitative Blow-Pipe Analysis, and Determinative Mineralogy. New edition, re-written and revised by H. B. Nason. 371 pp. Illustrated, 12mo, cloth. 2 50

Fothergill (J. Milner). Aids to Rational Therapeutics. *In preparation.*

Holland (J. W., M.D.). Diet for the Sick. Notes: Medical and Culinary. 16mo, paper, .25; cloth, .50.

Thudichum (J. L. W., M.D.). Annals of Chemical Medicine, including the Application of Chemistry to Physiology, Pathology, Therapeutics, Pharmacy, Toxicology and Hygiene. Vol. II., 8vo, with illustrations. *In Press.*

PHARMACEUTICAL ASSOCIATIONS.

NEW JERSEY STATE PHARMACEUTICAL ASSOCIATION.

THE third annual meeting of the Association was held at the rooms of the Board of Trade, in Trenton, on the 9th of May.

Following the opening of the session by the President, Mr. Wm. R. Laird, of Jersey City, the roll was called; about fifty members responding.

The President then delivered his annual address, which was referred to a committee of three, consisting of Messrs. Vandervoort, Brant, and Reynolds.

On motion it was agreed that all druggists present, not members of the Association, should sit with the Association as corresponding members.

Mr. Wm. Rust, the Treasurer, then submitted his annual report, as follows: Balance on hand at last report, $104.83; amount received, $320.24; total, $425.07; amount expended, $155.28; leaving a balance on hand of $269.79. The Treasurer stated that the receipts last year were more than for any previous year since the organization of the Association.

Mr. Rickey, from the Local Committee, announced the arrangements that had been made for the entertainment of the members of the Association and those who accompanied them.

The following committee was then appointed to nominate the officers for the ensuing year: Messrs. Walker, Reynolds, Rickey, Harrison and Davis.

A communication was received from William H. Newell, M.D., Secretary of Council of Analysts and Chemists, calling the attention of the Association to an act passed at the last Legislature, entitled "An act for the Prevention of Adulteration of Food or Drugs." Received and filed.

The Committee on Organization then reported the following officers for the ensuing year:

President, Charles Holzhauer, of Newark; *Vice-Presidents*, G. A. Mangold, of Trenton City, and E. S. Reed, of Atlantic City; *Treasurer*, Wm. Rust, of New Brunswick; *Recording Secretary*, Albert P. Brown, of Camden; *Corresponding Secretary*, R. W. Vandervoort, of Newark; *Standing Committee*, G. A. Mangold, ex-officio, Trenton; E. P. Nichols, Newark; A. J. Smith, Belvidere; Mulford Ludlam, Millville; J. L. De Cou.

Delegates to American Pharmaceutical Association, A. G. Smith, of Belvidere; J. Betzler, of Newark; J. P. Walker, of Freehold; C. Vreeland, of Orange; W. M. Townley, of Newark.

The Association then adjourned until half-past two o'clock.

AFTERNOON SESSION.

At half-past two the Association reassembled, when answers to the following queries were read: Can compressed pills be made properly for dispensing or extemporaneous preparations? Answered by Mr. P. Brown, of Camden.

How much knowledge of therapeutics should the pharmacist possess? Answered by Mr. D. N. Brandt, of Newark.

In combining spirits of nitre with liquor ammoniæ acetatis an effervescence takes place, giving a strong odor of nitrous ether. What is the change? Is the nitre injured? Answered verbally by Mr. A. P. Brown, of Camden.

It was decided to hold the next meeting at Trenton, Atlantic City.

On motion, a committee was appointed to prepare amendments to the constitution, and to report on the following morning, in reference to the election of the Board of Pharmacy, as a legislative committee.

The Association then adjourned to meet the next morning at ten o'clock.

Wisconsin Pharmaceutical Association.—The second annual meeting will convene in the old Chamber of Commerce, Nos. 413 to 417 Broadway, Milwaukee, on Tuesday, August 9th, at 10 A.M. Sessions will be held on the 9th, 10th, and 11th, at 10 A.M. and 2 P.M each day.

Reduced rates on railroads, viz.: Full fare to Milwaukee—return for one-fifth fare on certificate of local secretary, tickets holding good until Saturday 13th, inclusive.

The reception committee will make their headquarters at the Newhall House.

Exhibitors of objects of interest to pharmacists are requested to send their exhibits on or before the 6th inst., addressed to the local secretary, Henry C. Schrank, No. 437 East Water street, Milwaukee, charges prepaid, with instructions as to disposal of goods.

All information as to exhibits or meeting should be addressed to the local secretary, Henry C. Schrank, 437 East Water street, Milwaukee.

Massachusetts College of Pharmacy.—At the annual meeting of the Massachusetts College of Pharmacy, held June 6th, the following officers were elected for ensuing year:

President, Benj. F. Stacey; *Vice-Presidents*, Joel S. Orne, Solomon Carter; *Recording Secretary*, Henry Canning; *Corresponding Secretary* G. F. H. Markoe; *Treasurer*, Thomas Doliber; *Auditor*, John C. Lowd.

Trustees: S. A. D. Sheppard, Geo. F. Dinsmore, Freeman H. Butler, Edw. S. Kelley, Wm. F. Sawyer, J. Thos. Leary, Wm. W. Bartlet, Silas S. Bradford.

HENRY CANNING, Rec. Sec.

Cleveland Pharmaceutical Association.—At a meeting of the association held June 3d, the following officers were elected for the ensuing year: Daniel Myers, *President;* S. S. West, *1st Vice-President;* S. P. Churchill, *2d Vice-President;* L. A. Cobb, *Treasurer;* A. Mayell, *Secretary;* and an *Executive Committee* of five, of which A. E. Shallentrager is Chairman.

This association was formed over a year ago, and has had a salutary influence upon the druggists of the city, in a pecuniary way, as well as in the cultivation of the social element among them. The meetings are well attended, and a deep interest seems to be manifested by many of the members. Uniform prices on all the leading proprietary preparations have been established, and the trade interest is being closely looked after.

It is hoped that at no distant day the association will have all the leading journals pertaining to the business, in their rooms, thereby forming the nucleus of a library for the benefit of the association. W. M. B.

Alabama State Pharmaceutical Association.—A call has been issued for a meeting to be held at Birmingham, Ala., for the purpose of organizing a State Pharmaceutical Association. The Jefferson County Pharmaceutical Society is the initiator of the movement, and all druggists in good standing are invited.

Board of Pharmacy of the City and County of New York.—Office: College of Pharmacy Building. 209–211 East 23d street. Notice is hereby given that the *examination* of candidates by the Board of Pharmacy will hereafter take place on the *second Wednesday* of each month from 2 to 5 o'clock P.M. Applicants are requested to register their names with the Secretary *one week prior* to each examination day. The secretary will register qualified pharmacists on the second and fourth Wednesday of each month, from 2 to 4 o'clock P.M., at the above office. WILLIAM BALSER, M.D., Secretary,

Residence, 218 E. 13th St.

Dr. W. H. Osborn, of Baltimore, who died in June last, had for a number of years been the vice-president and treasurer of the Maryland College of Pharmacy. He was a member of the American Pharmaceutical Association and an influential and respected citizen of the community in which he resided. The college, at a meeting held June 18th, adopted a series of resolutions expressive of its sense of the loss sustained in his death.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 920.—**To Keep Simple Syrup** (C. G.).

The best way to keep syrup from fermenting is by bottling it, while hot, into suitable bottles or larger vessels and to prevent access of air. This is the principle, and it may be carried out in various ways. For instance, fill your syrup while hot in quart bottles, previously warmed, and fill them almost full. Cover or cork the bottles temporarily until the syrup cools a little and contracts in volume; then, having heated a small quantity of the syrup, refill the bottles, cork them securely and wax them. A layer of good olive oil poured on top of the hot syrup in the bottle will also keep out the air, and is a very good way to preserve it. It is easy to separate the oil.

No. 921.—**Hippuric Acid in the Urine of Man** (M. D.).

Liebig has shown that hippuric acid is a normal ingredient in the urine of man (see *Annal. d. Chem.*, 50, 161), and it may be separated in the following manner: Fresh urine is treated with milk of calcined magnesia, filtered and evaporated on the water-bath to a syrupy consistence. The residue is worked into a bottle which can be stoppered, and after the addition of some hydrochloric acid, is shaken with at least an equal volume of ether, which dissolves the hippuric acid. When the extract of the urine was rather fluid, the mixture does not separate, because the ether is inclosed in the fluid, the whole forming a kind of emulsion. But the separation of the ether can mostly be effected, if, after the mixture has stood for an hour, one-twentieth of its volume of alcohol be added. In that case the froth disappears, and the fluid separates into two layers, of which the upper and lighter one contains the hippuric acid; but at the same time there is some urea dissolved in it by means of the alcohol which has been added. This layer is now carefully removed by means of a siphon, and shaken with small portions of water; the alcohol and urea combine with the water, and the hippuric acid, together with some coloring matter, remains dissolved in the ether. By evaporation the acid is obtained in crystals, which generally are of a yellowish or brown color, from a resinous substance, which may be removed by animal charcoal. If, however, the extract of the urine was of the proper consistence, it will, after shaking with ether, generally subside to the bottom of the glass after a short time of standing, and the ethereal solution will float on the top, and not require the addition of any alcohol. It may be removed by a siphon fixed in the perforated cork of a flask, so as to admit of being filled by suction at another bent tube inserted by the side of it. The ether in the flask is distilled off, and the fluid residue poured into a small glass, and mixed with some water. After standing some time, and in some cases almost immediately, hippuric acid is deposited in silky needles. If a large amount of hippuric acid is present, the fluid is sometimes transformed, on the addition of water, into a solid mass of silky crystals. After sufficient time has been allowed for the crystallization of the acid, it is put on a small filter and washed with cold water. By re-dissolving it in water, and boiling it with some animal charcoal and evaporating the filtrate, it is obtained crystallized and pure. When it is intended to obtain the whole of the hippuric acid contained in any given quantity of urine, the extract, after its last remnants on the evaporating dish have been washed into the bottle by means of the hydrochloric acid, must be shaken with its bulk of ether from six to twelve times, although in most cases five or six applications of ether will be sufficient; in a small number of cases the extraction of the acid is not completely effected thereby. It is, therefore, necessary to repeat the extraction with ether until the residue, after evaporation, does not any longer yield any crystals.

No. 922.—**Extract of Musk** (W. C. F.).

This correspondent sent us a sample of extract of musk made by him, on October 16th, 1879, after a formula proposed by Mr. William Saunders (*Proceed. Amer. Ph. Assoc*, xxiv., 496, also NEW REM., 1879, 54), and which reads as follows: Mix ½ oz. liq. potassæ with 4 oz. of proof spirit, triturate with this mixture 2 drachms of the best musk, until it is thoroughly softened, then add enough proof spirit to make about a pint, allow the coarse particles to subside and pour off the supernatant fluid. Rub the coarser particles again with a fresh portion of spirit as before and repeat this until the musk is entirely reduced and the quantity of extract amounts to 3 pints. Allow this to stand two weeks with occasional shaking, when it will be ready for use. Our correspondent says that he used deodorized alcohol and that he paid $24.00 per ounce for the musk. But the extract, after it was made, did not please him; hence he did not use it, but let it stand, thinking that it would perhaps improve by age. But it has not done so.

Thinking that it would be more satisfactory to our correspondent to have a reply from first hands, we have submitted his query to our friend, Mr. Saunders himself, and here is his answer:

"I have prepared my Extract of Musk for some years past after this formula, and have never had any unsatisfactory results if *good* musk was used. The price which Mr. F. paid for his musk should have insured him a first-class article; still there is much musk sold at high prices which is not first-class. It is possible that Mr. F. expects to make from this preparation a pleasant and salable perfume. If he has this idea, it is a mistaken notion. No perfumer puts up simple extract of musk as a perfume for sale. The harshness and strength of this extract requires to be toned down and softened with other more agreeable articles to make a pleasant perfume, but, as a base to work on—which is all it was intended to be—it is a very serviceable article."

No. 923.—**Coating Articles with Galena** (F. J.)

Referring to the article in our last April number, p. 118 ("to coat articles with lead"), our correspondent asks what sulpho-urea is, and where it may be obtained. In answer to the first question we refer to page 221 of our last number, where we have briefly explained the chemistry of sulpho-urea. As to the second, we learn from the reports of the late Pharmaceutical Exhibition at London that Messrs. Young and Postans exhibited glass vases coated with galena on behalf of Messrs. Hamilton, Long & Co., of Dublin, who appear to work the process. The inventor or discoverer is Prof. J. Emerson Reynolds.

No. 924—**"Extra Strong" Essential Oils, and Strong Essences.** (Ch. J. L. and H. W.).

A few years ago several manufacturers of essential oils placed on the market (under the protection of a patent owned, we believe, by H. Haensel, in Pirna) so-called "extra strong essential oils (compare NEW REMEDIES, 1879, 245). These are produced by fractional distillation. A recent examination by Dr. Geissler enables us to give the following information. (The patent applies to the apparatus by which these products are obtained, and not to the product.) "Concentrated" oil of lemon and of

orange, prepared by H. Haensel, were found to have a spec. gr. of 0.9003 and 0.9090 respectively, while the ordinary oils have the spec. gr. 0.850 and 0.860. Brought in contact with sodium, the latter becomes oxidized, particularly so in the oil of lemon; both oils, therefore, contain oxygen. These oils are *miscible with alcohol* of 88% *in all proportions*, and yield even with 60 to 65 parts of 70% alcohol a perfectly clear solution, and with two parts of 60% alcohol only a slightly cloudy solution. They do not become hot by the introduction of iodine. Both are dextrogyre, "concentrated" oil of lemon + 4.3°, and oil of orange + 32° in the 220 [200?—ED. NEW REM.] millimeter tube of Wild's polaristrobometer. The special advantage of these "oils" is their extraordinary strength of aroma and taste, which is altogether beyond comparison with the ordinary oils. The manufacturer claims that one part of these concentrated oils is capable of replacing 30 parts of the common oils. Their price, however, is proportionately high.

Our correspondent ask how it is possible for some pharmacists to produce essences of essential oils, containing say 1 part of oil in 16 parts of quite low grade alcohol. From the above it appears that this can be accomplished by means of these concentrated oils.

Some of these concentrated oils are now, and have been for some time, for sale here; those which are in most demand are the concentrated oils of caraway, technically termed "carvol," which is much used in compounding certain liquors (*Kümmel*), as it is perfectly soluble in proof spirit. So also "juniperol," much used in making artificial gin.

Properly speaking, these "concentrated oils" are proximate principles, more or less pure, existing in the commercial oils, and separated by careful fractional distillation. Oil of caraway, for instance, which is an oxygenated volatile oil, may be separated into two liquids, one of which consists of carbon and hydrogen only, and which is named *carvene*, while the other, which is much more odorous, contains oxygen in addition, and is termed *carvol*. The former body, belonging to the class of terpenes, has a lighter spec. gr. and a lower boiling point than the latter. Similar bodies exist in many other essential oils, though many of them are pure hydrocarbons entirely devoid of oxygen.

No. 925.—**Stigmata of Maize** (Dr. T.).

The proper time for gathering these—which are also known as "corn-silk"—is about the middle of August until September, before the "silk" becomes dry. Experience has shown that the value of pharmaceutical preparations of "corn-silk," as a remedy in cystitis, etc., is much impaired by the presence of alcohol. For this reason, a tincture or a fluid extract containing alcohol are not to be recommended. The best way will be to prepare an aqueous extract at as low a heat as possible; if prepared in vacuo, so much the better. And the best mode of administration will be to dissolve a portion of the extract in water and mix it with syrup. Corn-silk yields about 25% of extract.

No. 926.—**The Hectograph with Printer's Ink** (U. W. A.)

R. Jacobsen, of Berlin, invented an improved process, several years ago, of producing copies of writing, somewhat on the principle of the hectograph, but with this difference that printer's ink was used, and that the original writing was transferred upon a specially prepared paper or linen. The process is described in full in NEW REMEDIES, 1879, 365. We now learn, from a correspondent in Europe, that Prof. J. Husnik, of Prag, has ascertained that the ordinary composition which is used in the hectograph answers for this purpose just as well as Jacobsen's specially prepared pad. The principle upon which the process depends is this, that a superficial tanning of the gelatin, in the gelatin-glycerin pad, makes the surface, wherever tanned or rendered insoluble, capable of taking fatty inks, while the rest of the surface rejects it. In practice then it is only necessary to have a perfectly level hectographic pad, to write the copy with ordinary nutgall-ink, to which a little extra tannin and extract of logwood has been added, and to transfer the writing in the ordinary manner upon the hectographic surface. Wherever the writing appears, the surface becomes tanned, and on now applying a roller with printer's ink, the written characters alone take the latter. The pad is to be inked after each impression. It is said that 300 to 400 sharp copies can be made upon dry paper. The only material necessary, besides the hectograph, is a slab, or zinc-plate, for spreading out the printer's ink, a small printer's roller with handle, and a roll of wood or paper or rubber for pressing the paper against the pad.

No. 927.—**Ess-Bouquet** (J.).

We take the following from our files:

Oil of rose	gtt.	12
" " lemon	"	30
" " neroli	"	30
" " lavender	"	60
" " palmarosa	"	60
" " petitgrain	"	60
" " bergamot	"	60
" " cloves	"	90
" " cinnamon	"	90
Essence of acacia (pomade de cassie, 1 lb.; alcohol, 1 quart)	"	100
" " jasmine (pomade de jasmine, 1 lb.; alcohol, 1 quart)	"	100
" " musk	"	100
" " tonka bean (3 oz. to quart)	fl. oz.	2
Alcohol	fl. oz.	32

No. 928.—**Ricinoleate of Magnesium (Magnesia Ricinica)** (G.).

Hager directs this to be prepared thus:

Sodium carbonate, crystallized	85 parts.
Caustic lime	20 "
Castor oil	100 "
Magnesium sulphate	90 "
Sodium chloride	40 "
Water	q. s.
Distilled water	q. s.

Dissolve the carbonate of sodium in 700 parts of boiling water, and add gradually, and under stirring, the caustic lime previously slaked and made into a milk with water. Boil, until a sample of the liquid, after filtration, no longer effervesces with hydrochloric acid. Then strain the whole and pour the liquid into a glass-stoppered bottle, in which it is allowed to settle. Pour off the clear supernatant liquid, and evaporate it to 100 parts. When cold add the castor oil, mix and set aside in a warm place, frequently stirring, until the mixture appears to be homogeneous and begins to thicken. Then mix it with 40 parts of warm distilled water, set it aside for two hours, occasionally stirring, and having again added 100 parts of boiling distilled water, mix it with a warm solution of the sulphate of magnesium and chloride of sodium in 200 parts of distilled water. Stir with a spatula until the magnesia soap has been converted into a thick, white mass. Then digest it on the water-bath for half an hour. Allow it to cool, pour off the liquid, and knead the soapy mass so that it may be deprived of adhering liquid as much as possible. Dry the soap, powder it, and preserve it in well-stopped bottles. The yield is about 100 parts.

This magnesia castor oil soap is given in doses of 5, 10, or 15 grams (75, 150 grs., or ½ ℥), and is best administered, mixed with sugar, in coffee.

No. 929.—**Alum in Bread** (O. A. A.).

If wheat has been badly harvested, particularly if it has been cut while damp, and no time has been given for thorough drying, or if it has begun to sprout, a portion of the gluten surrounding the central starchy portion of each seed is altered into a diastase-like body, which has the power of converting the starch into dextrin and sugar. And even if the original wheat has been properly harvested, bad management of the flour prepared from it may bring about the same change—as for instance, if the flour is allowed to become

and to remain damp, or if it be dried at too high a temperature. The same thing happens if good flour is treated, or made into a dough, with infusion of malt, and this shows at the same time that the change is due to the presence of a body acting like, or identical with, diastase. Now it has been long known to practical bakers that the addition of alum enabled them to produce apparently excellent bread, even from inferior flour. Sulphate of copper has likewise been found to accomplish this, and a very minute quantity of the latter is sufficient to produce very light and white bread. As soon as it was generally known that these mineral constituents were used for this purpose, the sanitary and police authorities very properly interfered, and heavy penalties were enacted in different countries against their employment. It has since then been ascertained that both alum and sulphate of copper, as well as various other inorganic bodies, are capable of preventing the above-mentioned alteration of the gluten, by destroying the vitality of the diastase, and this is the explanation of the action of these substances. Lime-water has the same effect, and is now very commonly used to improve inferior flour; no serious objection can be raised against this.

The detection of alum in bread is not always a very simple operation. It is necessary to reduce a considerable quantity of bread to ash. Crookes recommends the following proceeding: Heat at least 500 grains of the bread in a platinum or porcelain dish, until no more volatile matters are given off, and a black ash remains. The heat should not be pushed higher than is necessary to effect this; powder the mass; add about 30 drops of sulphuric acid and heat until vapors begin to rise; when sufficiently cool, add water, and boil for 10 minutes; filter and evaporate the filtrate until the fumes of sulphuric acid begin to be evolved, when 10 grains of metallic tin and an excess of nitric acid must be added, together with water, drop by drop, until action between the acid and metal commences; when all the tin is oxidized, add water and filter; evaporate the filtrate until fumes of sulphuric acid are again visible, when more water must be added, and the liquid filtered again if necessary; to the clear solution now add tartaric acid, then ammonia in excess and sulphide of ammonium; evaporate the liquid containing the precipitate suspended in it, in a dish, until all the smell of sulphide of ammonium has disappeared; filter, evaporate to dryness and ignite, to get rid of the organic matter; powder the black ash; boil it in a moderately strong hydrochloric acid, filter, add a crystal of potassium chlorate and boil for a minute; now add chloride of ammonium and ammonia, and boil for 5 minutes. If at the end of that time any precipitate is observed it will be *alumina*. From the filtered solution any lime present may be precipitated by oxalate of ammonium, and from the filtrate from this, any magnesia present may be precipitated by phosphate of sodium and ammonia.

No. 930.—**Hager's Catarrh Remedy** (W. H. B.).

Dr. Hermann Hager, a number of years ago, recommended the following mixture as a sovereign remedy in chronic bronchial catarrh and in all affections of the air passages:

Carbolic acid	5 parts.
Water of ammonia	6 "
Distilled water	10 "
Alcohol	5 "

Dissolve the carbolic acid in the alcohol, mix it with the other liquids and introduce the mixture into a glass-stoppered vial which should be only half filled by it. Then fill the vessel full of cotton.

When suffering from an attack of catarrh, or asthma, the vapor of the mixture is inhaled by a few strong inhalations through the nostrils, or, if the latter are impervious, through the mouth, until there is an impression produced as if the inhaled gas had reached the cardiac region. Hager calls the compound: *Olfactorium anticatarrhoicum.*

FORMULAS.

Keating's Cough Lozenges.—

Lactucarium	3 2
Ipecac	3 1
Squill	3 ¾
Extract of licorice	3 2
Sugar	3 2

Make into a mass with tragacanth mucilage and divide into 20 grain lozenges.

Soothing Ointment.—DR. MCCALL ANDERSON, in the *Specialist*, gives the following formula as the most soothing and sedative ointment for inflamed surfaces that he has become acquainted with:

Oxide of bismuth	25.00 parts.
Oleic acid	200.00 "
White wax	75.00 "
Vaseline	225.00 "
Oil of rose	.25 "

—*Canad. Pharm. J.*

Iodoform Bougies.—MR. D. R. ROGERS sends a communication to the *Canadian Pharmaceutical Journal*, in which he answers the inquiry of a correspondent regarding the preparation of iodoform bougies with cacao butter. He recommends to employ a glass tube of the size of the bougies required; to melt the cacao butter to the consistence of cream, then to mix the ingredients, and to pour in the tube, corked at one end. When cold, the mass is forced out with a stick, as a piston rod, from the corked end. The bougies are so smooth that no trouble is experienced in inserting.

Liqueur Chartreuse.

1. *Yellow Chartreuse* (Chartreuse jaune).

Oil of angelica	24 parts.
" cajuput	3 "
" calamus	1 "
" clove	2 "
" coriander	2 "
" hyssop	3 "
" mace	4 "
" melissa	3 "
Alcohol, 95%	3,000 "
Sugar	1,200 "
Distilled water	1,800 "
Tincture of saffron	q. s.

2. *Green Chartreuse* (Chartreuse vert).—Contains the same ingredients except the sugar, of which it only contains 900 parts. The yellow color of the former is converted into a yellowish green by the addition of a little indigo solution.

3. *White Chartreuse* (Chartreuse blanche).—Like the former; but contains only 600 parts of sugar.—*Pharm. Zeit.*, 28.

Pain Expeller.—Two correspondents of the *Pharm. Zeit.* (No. 28) send formulæ of mixtures which each of them declares to have the greatest similarity with the article in question (name not given):

1. Tinct. of capsicum (1 part capsicum, 10 parts dil. alc.) 25 parts.

Spir. of camphor	5 "
Water of ammonia	10 "
Alcoholis	10 "
Caramel	q. s.

2. Tinct. of capsicum 20 parts.

" arnica	10 "
" cloves	10 "
Spir. of soap	10 "
Spir. of camphor	10 "
Water of ammonia	10 "
Oil of cloves	5 "

Ointment for the Pains of Chronic and Sub-Acute Gout and Rheumatism.—The formula of Dr. Lenoble, given by the *Medical Times*, is as follows: India rubber (pure and finely cut), myrrh, canella, and salicylate of sodium, of each 10 gms. (160 grains); sufficient turpentine to render the ingredients fluid. The painful joints to be rubbed thrice daily and covered with raw cotton. [We have not tried the above formula, but have experience with the use of a thin sheet of India-rubber, gutta-percha, or oiled silk applied to the painful joints, so as to exclude air and retain moisture, and have found it both efficient and cleanly.—ED. N. R.]

Snow-White Oriental Cream, for whitening and beautifying the complexion (Phalon & Sons, New York), according to Chandler, consists of a colorless fluid containing in suspension 50 per cent of lead carbonate.

Mrs. Winslow's Soothing Syrup.—(Curtis & Perkins, New York.) White syrup, 8 parts, mixed with one part of a tincture made from 10 parts of bruised fennel seed, 1 part of fennel oil, and 60 parts of 90% spirit.—HAGER.

Van Buskirk's Sozodont.—(Hall & Ruckel, New York.) A quadrangular case, containing a bottle containing a red fluid and a packet of powder. The former consisting of a solution of oil soap 5 parts, in 6 parts of glycerin, 30 parts of spirit, 20 parts of water, flavored with peppermint, clove, cinnamon, and star-anise oils, and highly tinted with cochineal. The powder is a mixture of chalk, magnesia, and Florentine orris root.—SCHÆDLER.

Palliative for Hay Fever.—A writer in the New York *Sun* gives the following formulas as having relieved her sufferings from autumnal catarrh during six years past and proved similarly beneficial with others: Into a 4 oz. wide-mouthed vial, half filled with cotton, put the following mixture:

Carbolic acid	℥ iiss.
Ammonia water (sp. gr. 0.960)	℥ ij.
Distilled water	℥ v.
Alcohol	℥ viiss.

M. Keep the vial closed tightly as much as possible, and when used, inhale the fumes through the nostrils.

A Purgative Powder recommended by *The Druggist* is composed as follows (the ingredients being in the form of powder):

Extract of jalap	4 parts.
Cream of tartar	4 "
Podophyllin	⅙ part.
Ginger	2 parts.
Cinnamon	2 "
Nutmeg	½ part.
Sugar	16 parts.
Milk-sugar	8 "

Triturate the podophyllin with the milk-sugar for fifteen minutes, add the other articles and mix well. Keep in well-corked bottles. Dose, one teaspoonful.

[On studying the above it will be observed that it is, in a general way, the "compound jalap powder," with podophyllin; aromatics to correct the griping tendency; sugar to improve its taste and give bulk, and milk-sugar, which serves by its grittiness to comminute the podophyllin. Now therapeutically, podophyllin is the congener of jalap, with the advantages that it can be used in smaller doses, and that it is not *quite* so liable as jalap to be adulterated or inert. One is inclined to ask, then, why both were employed, or why one might not quite as well be omitted? Furthermore, what advantage *to the patient* acrues from the presence of such a variety of aromatics? ED. N. R.]

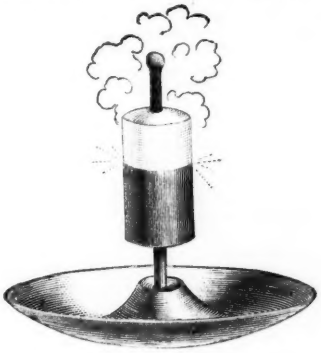
Cement for Aquaria.—Three parts each of litharge, fine white sand and plaster of Paris, and one part of finely powdered rosin, are carefully mixed with enough boiled linseed oil to make a homogeneous paste, and a little patent drier added. It requires a few hours for the cement to become fit for use. It is equally applicable to salt or sweet water tanks, becomes soon hard, and is altogether unaffected by saline solutions.—*Pharm. Centralh.*, No. 23.

NOVELTIES.

HENRY HODSON, of 30 Federal street, Boston, makes a very agreeable triple extract which is named after the new Club, in Boston:—the **St. Botolph.** The same manufacturer deals in perfumes, colognes, Florida water, hair oils, etc., that are said to be of superior quality.

AN excellent article for the season is the **Smelling Salts,** put up by REQUA & WETMORE, of 130 Fulton st., New York, in small watch-shaped vials that retail for 10 cents. They are handy for the pocket-book in both senses and are quite attractive.

Carey's Mounted Pastiles for disinfecting; for perfuming and deodorizing; for incense for home use; for sure death to mosquitoes, and for insects on house-plants



(Cut two-thirds full size.)

are decidedly "cute" in the way of novelties. The illustration shows their form. It remains only to say that each pastile is impaled on a parlor match, which both serves to light it and to hold it erect in the little bronzed stand which is made for the purpose of a support. We will suggest that an anti-asthmatc pastile in this form would be handy. Address AUGUSTUS C. CAREY, Boston, Mass.

NEW PATENTS.

[*Complete specifications and illustrations may be obtainea of any one or more of the following patents by sending the number, title, name of patentee, and date of issue, with twenty-five cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

April 5th, 1881.

239,771. *Automatic Indicating Weighing Scales.*—Jas. R. Haight, Adrian, Mich.

239,781. *Fly-Poison Plate.*—Wm. E. Hingston, Buffalo, N. Y., assignor to himself, W. M. Citerley and G. J. Brown, same place.

239,828. *Oil and Liquid Pump.*—Ellen Augusta Nichols (administratrix of Francis Nichols, dececased), Walcott B. Mannaring and Olin L. Livesey, New London, Ct., assigners to Acid Pump and Siphon Co., same place.

239,912. *Bottle-Wrapper and Material therefor.*—Henry V. Young and Martin V. Kacer, St. Louis, Mo.

April 12th, 1881.

239,943. *Abdominal Supporter.*—Sarah A. Drewry, New York, N. Y.

239,956. *Bottle-Holder.*—Milton B. Hood, Lynn, assignor to himself and Martin C. Hood, Everett, Mass.

239,967. *Funnel.*—Peter McAuslan, Hamden, N. Y.

239,974. *Indelible Ink.*—Aaron N. Morse, Milwaukee, Wis., assignor of one-half to Thos. Ballentine and G. Maxon, same place. A compound consisting of pure soft water, caustic (stick) potash, seed-lac, permanganate of potassium and lamp-black.

239,987. *Bottle-Wrapper.*—John Shellenberger, Indianapolis, Ind.

240,058, 240,059. *Thermometer.*—William A. Wales, assignor to the Auburndale Watch Co., Weston, Mass.

240,086. *Syringe.*—James Burbridge, Robert C. Thorpe and Thomas Oakley, Tottenham, County of Middlesex, England. Patented in England, May 5th, 1880, and in France, Sept. 6th, 1880.

240,089. *Clip for Frameless Spectacles.*—Robert A. Carter, New York, N. Y.

240,148, 240,149. *Invalid Bedstead.*—Ferdinand A. Kittell, Pittsburg, Pa.

240,150. *Salve.*—Aquilla T. Lawrence, Idaho Springs, assignor of one-half to John W. Gilbert, Georgetown, Col. (For saddle and harness-galls, diseases of the hoof and sores.) Rosin, lard, gum-camphor, white gum, turpentine, sugar of lead, sulphate of zinc, and fresh hen's eggs.

240,196. *Preparation of Hydrochloric Acid.*—Ernest Solvay, Brussels, Belgium, patented in England, February 25th, 1880. The process of obtaining hydrochloric acid in a dry state from solutions of the same, consisting in adding chloride of calcium to such solutions for the purpose of retaining the water, and then applying heat to remove the acid.

April 16th, 1881.

240,222. *Bottle-Stopper.*—Henry Barrett, Hampton, County of Middlesex, England, patented in England, September 30th, 1879.

240,244. *Oil-Can.*—Henry Flynt, Jr., St. Louis, Mo., assignor by mesne assignment to himself and Dudley H. Flynt, same place.

240,285. *Bottle-Washer.*—Simon Traber, St. Louis, Mo.

240,382. *Insect-Killing Liquid.*—John Callahan, Brooklyn, N. Y. Mixes with water 16 pounds of lime, 100 pounds of potash, 25 gallons crude petroleum, and 10 pounds sulphuric acid.

240,384. *Pastil.*—Augustus C. Carey, Boston, Mass. A pastil composed of a friction match, having a pastil composition attached to its stick. (See another page).

240,406. *Filter-Press.*—Alexander Gordon, Cincinnati, Ohio.

240,479. *Hernial Truss.* Charles H. Jordan, Jordan, N. Y.

9,674. *Design for a Package for Powdered Articles.*—Stephen S. Newton, Binghamton, N. Y., assignor to S. S. Newton & Co., same place.

April 26th, 1881.

240,576. *Turpentine Box or Trough.*—Montraville Cooper, Columbus, S. C.

240,597. *Manufacture of Aluminous Cake.*—Geo. T. Lewis and Carl V. Petraeus, Philadelphia, Pa.

240,688. *Glass-Bodied Cans.*—John A. Frey, Brooklyn, N. Y.

240,697. *Apparatus for and Process of Producing Artificial Cold by Chloride of Ethyl.*—John F. Gesner, San Rafael, assignor of three-fourths to Edw. P. Flint, San Francisco, Cal.

240,746. *Fire-Proof Paint.*—Orion B. Millick, Bloomsburgh, Pa. A compound of coal-tar, suphuric acid, gum of india-rubber, boiled linseed oil, benzin, oxide of iron, cement, and lime.

240,759. *Effervescing Phosphated Tonic Beverage.*—Clemmons Parish, Philadelphia, Pa. Adds one part of Parish's Chemical Food to twelve parts of aërated or carbonated water, with sufficient coloring and flavoring matter to render the mixture palatable and properly colored. The bottles are closely corked, placed in a warm room, and occasionally agitated "to become modified by time."

240,798. *Stopper for Bottles.*—James Wills, New York, N. Y.

May 3d, 1881.

240,899.—*Slate-Roofing Paint.*—Jacob L. Fauss, North Bristol, assignor of one-half to Edward W. Laird, Cleveland, Ohio. Residue of coal-tar, ground hematite ore, ground slate, crude benzole, and dead or stale oil or crude carbolic acid.

240,958. *Cataplasm or Poultice.*—Stephen Brown, New York, N. Y. A cataplasm or poultice consisting of a fabric coated or impregnated with gelatin, glycerin, Irish moss, extract of bark of European larch, gum tragacanth, mucilage of flax-seed, and mucilage of slippery-elm bark.

240,966. *Pill-Rounding Machine.*—George F. Chappell, New York, N. Y.

240,995. *Apparatus for Manufacture of Sodium Carbonate.*—Moritz F. J. Gerstenhofer, Freideburg, near Freiburg, Saxony, Germany.

231,036. *Tracheotome.*—Lewis J. Lyman, Manhattan, Kansas.

241,089. *Bottle-Stopper and Fastener therefor.*—Hugh M. Sweeney, Providence, R. I.

May 17th, 1881.

241,536. *Machine for Rolling or Spinning into Cylindrical Form Licorice, etc.*—Gerhard E. Grimm and John H. Grimm, Camden, N. J.

241,551. *Siphon.*—Hiram S. Lathe, and Alonzo L. Cross, Lynn, Mass.

241,569. *Surgical Dilator or Tent.*—Frederick A. Stohlmann and Edward Pfarre, Brooklyn, N. Y. The method of preparing tupelo root and making dilators or tents—consisting in drying the root thoroughly, cutting the same out into cylinders, rolling the same between grooved rollers to compress and condense the same, and then finishing the surface.

241,640. *Paint Compound.*—Augustus M. Turner, Louisville, Pa. Composed of india-rubber, benzine, linseed oil, spirit of turpentine, water, unslaked lime, sugar of lead, sulphate of zinc, white lead, and oxide of zinc.

241,655. *Lactometer.*—Friederich Huren, Hanover, Germany.

241,682. *Writing Ink and Fluid.*—James E. Mallory, New York, N. Y. Composed of extract of galls or gallic and tannic acid, and salts of iron, and gum, by subjecting them to the action of pure oxygen gas.

241,738. *Manufacture of Artificial Chinoline.*—Zdenko H. Skraup, Vienna, Austria. The formation of chinoline by the synthetic method—by the action of glycerin and sulphuric acid upon a mixture of nitrobenzole and aniline.

9,715. *Process of Obtaining Isinglass.*—Isaac Stanwood, Gloucester, Mass.

May 24th, 1881.

241,803. *Compound for Painting Roofs, etc.*—Aldus F. Hawthorne and George W. Hawthorne, Lancaster, Pa. Consists of coal-tar, asphaltum varnish, gutta percha, Japan varnish, spirit of turpentine, Venetian red, pulverized pumice-stone, ground alum, dry sulphate of iron, dry slaked lime, and burnt umber.

241,834. *Bottle-Washer.*—Adolph von Schade, Newport, R. I.

241,852. *Safety Can for Containing Liquid.*—Robert R. Everest, Brooklyn, N. Y.

241,863. *Bed-Urinal.*—Elisha B. Hopkins, Madison, N. Y.

241,876. *Blacking Compound.*—George E. Millow, Austin, Nev. Compound of sulphate of zinc, alcohol, shellac, camphor, and lamp-black.

241,883. *Abdominal Supporter.*—Susan A. Richardson, Springfield, Mass.

241,911.—*Paint Composition.*—Henry Berg, Jersey City, N. J. Consists of white lead, ground metallic iron,

Venetian red, varnish, brown japan, turpentine, and a liquid drier.

241,921. *Means for Attaching Caps to Bottles.*—Homer Brooke, New York, N. Y.

242,086. *Adjusting-Scale.*—Adolf Westermaier, Philadelphia, Pa.

ITEMS.

Dr. C. D. F. Phillips, late Professor of Materia Medica and Therapeutics in the Westminster Hospital School of Medicine, having resigned his position on account of his ill health, has been the recipient of a vote of thanks from the Council for his many services to the school. Although still paraplegic, his health has somewhat improved and he is actively engaged upon the second volume of his work on Materia Medica, the first of which was re-published not long since in this country.

The Chinese "Tael," heretofore rated by our Government as equivalent to $1.35 is, by a recent decision, altered to $1.21 1/2.

Exhibit at the Massachusetts Medical Society.—This society recently celebrated its hundredth birthday, one feature of the occasion being a remarkable exhibition of things that were calculated to illustrated the progress of Medical Science. The *Boston Medical and Surgical Journal* of June 23d gives an interesting account of it, from which we extract the following, as being likely to interest our readers, and as offering suggestions that might well be considered in organizing future exhibitions in connection with society meetings.

The materia medica exhibit, divided into ten groups, arranged on each side of the passage on the right of the hall, attracted the attention of the visitor by its novel and picturesque appearance. The pressed medicinal plants from the Gray Herbarium at Cambridge papered the wall at one end of the hall, the botanical models from the College of Pharmacy covered a large table near the entrance, and hundreds of bottles from the cabinets of the College of Pharmacy and the Harvard Medical School were arranged along either side, interrupted only on the left by Mr. Sheppard's collection of Pharmacopœias and Dispensatories. The principal groups were arranged in regular order, with numberless explanatory cards. They were, briefly, as follows:—

No. 1 contained upon its upper rows the vegetable and animal drugs which have been officinal during the entire century; that is, those which were to be found in the Edinburgh Pharmacopœia of 1783, or the London Pharmacopœia of 1788, and in all the editions of that of the United States to the present time. The middle shelves of this group contained the chemicals, and the lower one the preparations which have stood the same test. These, the "Ancients and Honorables," were in full force, there being in the upper rows hardly a deficiency, excepting common articles not exhibited. Of the preparations, a complete catalogue was prepared for distribution, but only about fifty of the most interesting were shown. No. 2 contained those which have been discarded during the century. This group was naturally quite incomplete, still it contained a few things quaint and curious. No. 3, drugs and preparations introduced during the same time, was fully represented. No. 4, novelties not yet officinal. This interesting collection numbered from fifty to sixty specimens of crude drugs and a number of preparations; among the former, coto, quebracho, duboisia, "yerba santa," and others attracted attention. Among these it was curious to see pepsin and "cosmoline," which have been used so long as to seem officinal. The elastic capsules, soft as India rubber, containing half an ounce each of cod-liver oil, were the most striking novelties of the season. These were in No. 5, devoted to modern specialties.

The case No. 6, containing proximate principles found in medicinal plants and animals, was unusually full and interesting, and included many of great rarity and value. The fixed oils, eighteen or twenty in number, included all of any interest to the physician. The volatile oils, fifty-four in number, represented almost every conceivable aromatic drug. Among those rarely seen were the oils (not oleoresins) of pepper, ginger, and cubebs, calamus, and East India sandal-wood. Menthol, vanillin, copaivic acid, as well as resorcin, were other interesting novelties. The centre of the case was filled with alkaloids and their salts. Of the alkaloids themselves and definite neutral or acid constituents there were one hundred and thirty-two. Among the rarer substances here were to be found crystallized aconitine, pseud- and jap-aconitine, pelletierine, cotoine, para- and hydro-cotoine, duboisine, curarine, "crystallized" tannic acid, pepsin (pure), and many non-commercial alkaloids of opium. Besides these there were salts of the commoner alkaloids in great variety, and a beautiful set of seventy alkaloids, acids, and salts from the cinchona. No. 7, miscellanies and curiosites, contained several obsolete medicinal fungi and numerous worthless things which have had a temporary place in therapeutics. No. 8, the Pharmacopœias and Dispensatories above mentioned of all ages and languages, numbered over two hundred.

An annex to the Herbarium already mentioned was formed by living specimens of guaiacum, hæmatoxylon, cinchona, and other interesting plants of medicinal virtues upon the stage at the other end of the room.

The botanical models which attracted much attention were Anjoux's complete set of thirty-seven flowers, fruits, etc., made upon a greatly enlarged scale (the peapod is about two feet long), and capable of being taken to pieces so as to display the internal structure. Of the specimens shown it is interesting to know that many were donations from leading manufacturers and dealers, or from druggists in the city, and that after the exhibition they were divided between the College of Pharmacy and the medical department of Harvard University, whose cabinets are thereby materially enriched.

The largest share of credit for the bringing together of such a remarkable collection of interesting subjects is due to Prof. Wm. P. Bowles, M.D., of the Massachusetts College of Pharmacy.

University of Michigan. The following are the graduates in the Pharmacy Department:

James A. Allen, Fred. C. Bailey, Richard B. Bancroft, Charles L. Becker, Charles H. Circler, Oliver H. Dickinson, Ernest E. Gatchell, Samuel H. Gunder, Harriet L. Harrington, Charles H. Huen, Louis B. Knapp, John H. Loomis, Clyde C. Lovin, Harry F. McCrea, Ernest H. Morse, Matthias Noll, Jr., Frank C. Parker, Burt Parrott, Charles W. Parsons, William T. Quayle, Theodore A. Reyer, George W. Rood, Theophilus Schmid, Samuel Schmidt, William A. Sexton, Oscar Textor, Carey W. Thompson, Frank A. Thompson, Del. D. Turner, Ralph M. Ward, Albert M. Wheeler, Seward W. Williams, Oscar L. Wilson, Theodore H. Wurmb.

The Cultivation of Jalap in India.—The Indian government has offered to distribute gratuitously, jalap tubers to planters willing to cultivate them. The following details of the propagation and growth of jalap in the Octacamund gardens have been published by Mr. Jamieson.

Method of Cultivation.—Having no data to guide me regarding the climate and soil which are natural to the jalap plant, I tried it in a variety of situations, and now find that it thrives best in a tolerably rich, dry and friable loamy soil; in fact, conditions of soil that are indispensable to the production of good potatoes seem equally necessary to the growth of jalap. Good grass land is preferable to open rich forest land; when planted in the latter, it has a greater tendency to produce a mass of succulent roots than to form tubers. In opening land for the cultivation of jalap, several acres of well-drained grass land sheltered from the south-west winds, and with a stream of water on or near it, should be selected. If the land be very steep, it should be laid out in terraces 10 feet wide. The terracing should be completed by the end of

January, and the ground dug over to the depth of 2 feet and left exposed to the action of the sun until the beginning of April, when it should be drilled, manured, and planted with potatoes (an early ripening variety of kidney would be the best variety to plant). The potatoes should be lifted in June, the land cleared of weeds and forked over, in order that the manure (not taken up by the potatoes) may be incorporated with the soil. The ground is now ready to receive the jalap plants, which should be planted when the tubers are about the size of pigeon's eggs in rows (across the terraces), the ridges a few inches higher than the general level of the ground, in order that they may be raised sufficiently high to prevent water from lodging immediately round them. If the weather be dry, the plants should be watered occasionally until they have begun to grow; when once established, ordinary garden culture as to weeding, etc., is all that is necessary.

Jalap is an herbaceous plant, throwing out twining stems, which should be supported by stakes or wire trellises in the same manner as ordinary garden peas are. The stems die down annually, and the tubers remain dormant for two or three months. In addition to the aërial stems, jalap throws out a mass of underground shoots which emit roots and form tubers at intervals of from 8 to 9 inches. It is from these underground shoots that the greater proportion of our plants have been raised. When cut about 3 inches long and planted, they root freely and gradually enlarge into tubers; by this means the plant can be multipled to any extent.

In the years 1879-80, 173 lbs. of dry jalap tuber was supplied to the medical department, valued at 393 rupees. One acre of land planted as described should at the end of three years produce 5,000 lbs. of green tuber which will yield, when thoroughly dried, 1,000 lbs. of jalap powder. The cost of cultivation, collection, and drying of the root for the same period will not exceed 300 rupees. I therefore estimate that dried jalap tuber can be produced in Octacamund at a cost of four annas and ten peis (about 12 cents) per lb.

No regular season has yet been observed for collecting the tubers or method adopted for preparing the drug for use, but I have no doubt it will be found most advantageous to dig them up when the herbaceous stems have died down and the tubers are dormant, which on the Nilgiris will be during the months of January and February.

The propagation and growth of the jalap in the Octacamund gardens has so far been very successful, so much so that I consider it highly desirable that the area should be extended until there are at least 10 acres put under cultivation.

From the Chemists' analysis and valuation published in G.O., No. 1,027, dated July 1st, 1878, there can be no doubt entertained as regards the commercial value of Octacamund grown jalap.—*Chem. and Drugg.*

Cochineal Production on the Canaries.—Mr. G. Davidson, Consul of Belgium at Teneriffe, reports that the export of cochineal from the Canaries during the fiscal years July 1st, 1878–June 30th, 1879, and July 1st, 1879.–June 30th, 1880, was as follows:

Export to	1878–1879	1879–1880.
Great Britain	3,093,523 lbs.	2,607,770 lbs.
France	1,166,099 "	920,755 "
United States	393,357 "	194,642 "
Germany	296,152 "	166,271 "
Spain	95,876 "	138,796 "
Morocco		8,637 "
Average price	2 francs 50 cm. per lb.	3 francs per lb.

Eucalyptus Dressing.—Mr. Lister has recently been making use of eucalyptus oil as a substitute for carbolic acid in antiseptic dressings. In some cases the clear oil is used on such cases as carbolized oil has formerly been employed in. An ointment has also been used composed of 1 part of eucalyptus oil, 1½ parts of paraffin, and 2½ parts of vaseline. An emulsion of eucalyptus and iodoform employed as a dressing is made by adding 96 grains each of eucalyptus oil and powdered gum acacia to 8 grains of iodoform, and 2 fluid ounces of water.

The Drug, Paint and Chemical Exchange is a new organization in this city to facilitate the business of these allied industries. Its officers are as follows: *President*, George M. Olcott; *Vice-President*, E. L. Molineux; *Secretary*, L. H. Cress; *Treasurer*, I. S. Coffin; *Executive Committee*, Edward Hill, *Chairman;* J. McKesson, jr., J. S. Page, J. R. Townsend, W. S. Mersereau, Charles F. Sanborn, F. E. Dodge; *Arbitration Committee*, J. W. Tieman, J. L. Riker, Lewis Morris.

Analysis of Food and Drugs.—The Sanitary Committee of the New York State Board of Health, at a recent meeting in this city, discussed chapter 407 of the Laws of 1881, entitled, "An act to prevent the adulteration of food and drugs." The articles which come under the provisions of the act were divided into eleven groups, each group being assigned to an analyst, as follows: Group No. 1—Fruit and spices; Dr. Lattimore, of Rochester, Group No. 2—Sugar, glucose, syrups, molasses, confections, honey, soda-water, ice-cream; Dr. Pitt, of Buffalo. Group No. 3—Butter, cheese, lard oil, olive oil; Dr. Caldwell, of Ithaca. Group No. 4—Wine, beer, spirits, cordials; Dr. Englehart, of Syracuse. Group No. 5—Tea, coffee and cocoa; Drs. Lattimore and Hoffman. Group No. 6—Organic chemicals as met with in Pharmacy, quinine and its preparations, ether, food essences; Dr. Caldwell. Group No. 7—Meat extracts, fish and fish extracts, and gelatine; Dr. Chester, of Hamilton. Group No. 8—Vegetable and animal drugs; Dr. Hoffman. Group No. 9—All pharmaceutical preparations; Dr. Hoffman. Group No. 10—Cereals, grain products, artificial cereals for the use of children and invalids, baking powders, and all chemicals used by bakers; Dr. Love, of New York. Group No. 11—Milk and its preparations; Prof. Chandler. The following were appointed inspectors to collect samples for analysis: Dr. G. D. Smith, of Fulton county; Dr. A. L. Colby, of New York, and Dr. C. E. Munsel, of New York.

PHARMACEUTICAL CALENDAR.—August.

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